

حمل الآن

مجانا وحصريا

المراجعة رقم (1)

الترم الثاني



Unit 1**Q1 Choose the correct answer:-**

- 1) $7^2 \times 7^3 = \dots\dots\dots$
a) 7^6 b) 14^5 c) 7^5 d) 49^6
- 2) $5^8 \div 5^4 = \dots\dots\dots$
a) 14 b) 5^4 c) 1^2 d) 5^2
- 3) $3^5 \times \dots\dots\dots = 3^{10}$
a) 3^2 b) 3^5 c) 3^{15} d) 3^3
- 4) $(-7)^9 \div \dots\dots\dots = (-7)^3$
a) 7^6 b) -7^3 c) $(-7)^{12}$ d) 7^{27}
- 5) Half of the number $2^6 = \dots\dots\dots$
a) 1^6 b) 2^3 c) 1^3 d) 2^5
- 6) Which of the following equals $(-9)^2$?
a) -81 b) -18 c) 18 d) 81
- 7) If $7^n \times a^m = a \times 7 \times a \times a \times 7$, what is the value of $n + m$?
a) 3 b) 2 c) 5 d) 6
- 8) Which of the following equals -3^4 ?
a) -12 b) -7 c) -81 d) 81
- 9) Which of the following equals 2^{-4} ?
a) -16 b) 16 c) $\frac{1}{8}$ d) $\frac{1}{16}$
- 10) Which of the following is the multiplicative inverse of $(-1)^3$?
a) $(-1)^3$ b) $(-1)^2$ c) 1^3 d) 1^2
- 11) Which of the following is the additive inverse of 4^{-3} ?
a) $(-4)^3$ b) $(-4)^{-3}$ c) 4^3 d) 4^{-3}
- 12) Which of the following equals $a^{-1} \times a^3$?
a) a^2 b) a^4 c) $\frac{1}{a^2}$ d) $\frac{1}{a^3}$

- 13) Which of the following equals $\frac{y^{-2}}{y^{-6}}$?
a) y^4 b) y^8 c) $\frac{1}{y^4}$ d) $\frac{1}{y^8}$
- 14) $5a^0 - (5a)^0 = \dots\dots\dots$
a) 0 b) 5 c) 4 d) 10
- 15) Which of the following equals the third of the number 3^x ?
a) 1^x b) $(\frac{1}{3})^x$ c) 3^{x-1} d) 3^{x+1}
- 16) Which of the following equals one quarter of the number 2^{20} ?
a) 2^5 b) 2^{10} c) 2^{18} d) 2^{19}
- 17) Which of the following equals $2^a + 2^a$?
a) 4^{2a} b) 2^a c) 2^{2a} d) 2^{a+1}
- 18) Which of the following numbers is written scientific notation ?
a) $1.5 \times 10^{4.5}$ b) 15×10^5 c) 31.5×10^5 d) 3.15×10^5
- 19) Which of the following equals 8 million in scientific notation ?
a) 8×10^7 b) 8×10^6 c) 8×10^8 d) 8×10^{-6}
- 20) Which of the following equals 0.000073 ?
a) 7.3×10^{-5} b) 7.3×10^6 c) 7.3×10^5 d) 7.3×10^{-6}
- 21) If $6.3 \times 10^n = 0.00063$, what is the value of n ?
a) -4 b) -3 c) 4 d) 3
- 22) If the number $y \times 10^{-9}$ is written in scientific notation, then y = ...
a) 6 b) 60 c) 0.6 d) 600
- 23) Which of the following equals 6000×50 ?
a) 30×10^5 b) 30×10^3 c) 300×10^2 d) 3×10^5
- 24) Which of the following is the greatest ?
a) 6.3×10^5 b) 5.2×10^5 c) 9.8×10^4 d) 7.3×10^4
- 25) If $\sqrt{x} = 5$, then x =
a) 10 b) 20 c) 25 d) ± 25

- 26) What is the value of $\sqrt{(-5)^2}$?
a) 5 b) -5 c) 25 d) ± 5
- 27) Which of the following equals $\sqrt{16x^2}$?
a) $4x$ b) $-4x$ c) $4x^2$ d) $4|x|$
- 28) Which of the following is the multiplicative inverse of $\sqrt{\frac{9}{25}}$?
a) $-\frac{5}{3}$ b) $\frac{5}{3}$ c) $-\frac{3}{5}$ d) $\frac{3}{5}$
- 29) Which of the following is the additive inverse of $-\sqrt{0.16}$?
a) 0.4 b) -0.4 c) 0.8 d) -0.8
- 30) If a , b are two square roots of the number c , then a + b=.....
a) 2a b) 2b c) 0 d) 1
- 31) If $x = \sqrt{\frac{1}{9}}$, what is the value of x^3 ?
a) $\frac{1}{3}$ b) $\frac{1}{9}$ c) $\frac{1}{27}$ d) $\frac{1}{81}$
- 32) $\sqrt{4 + \dots} = 4$
a) 0 b) 4 c) 12 d) 16
- 33) $\sqrt{36} + \sqrt{16} = \sqrt{\dots}$
a) 52 b) 10 c) 100 d) 120
- 34) If $x^3 = -27$, what is the value of x ?
a) 3 b) -9 c) -3 d) ± 3
- 35) What is the value of $\sqrt[3]{\sqrt{64}}$?
a) 2 b) 4 c) 8 d) 64
- 36) If $\sqrt[3]{b} = -8$, what is the value of b ?
a) 2 b) -2 c) -512 d) 64
- 37) If $\sqrt[3]{y} = -\sqrt{25}$, what is the value of y ?
a) 5 b) -5 c) -125 d) 125

38) $|\sqrt[3]{-125}| = \sqrt{\dots\dots\dots}$

a) 5

b) -5

c) -25

d) 25

39) If $a = 5^3$, then what is the value of $\sqrt[3]{a}$?

a) 5

b) 3

c) 125

d) 25

40) If $x^2 = 64$, then $\sqrt[3]{x} = \dots\dots\dots$

a) 2

b) -2

c) 4

d) ± 2

41) $\sqrt[3]{64 - \dots} = 3$

a) 9

b) 27

c) 37

d) 55

Q2 Complete the following:-

1) $(\frac{3}{5})^3 = \dots\dots\dots$

2) $\frac{5 \times 5^3}{5^4} = \dots\dots\dots$

3) $\frac{5^7 \times 5^2}{5^3 \times 5^5} = \dots\dots\dots$

4) $\frac{(-a)^4 \times a^6}{(-a)^3 \times (-a)^5} = \dots\dots\dots$

5) $\frac{x^7 \times x^{11}}{x^3 \times x^5} = \dots\dots\dots$

6) Double the number 2^{10} is $\dots\dots\dots$

7) half the number 2^{10} is $\dots\dots\dots$

8) $7^{10} \times 7^{-10} = 3^{\dots\dots\dots}$

9) $2x^{-2} y^{-3} = \frac{2}{\dots\dots\dots}$

10) If $x = y$, then $(-3)^{x-y} = \dots\dots\dots$

11) the multiplicative inverse of 5^{-1} is $\dots\dots\dots$

Q3 Answer the following:-

1) If $a=2$, $b=-5$, find the numerical value of

a) $3b^2$

b) $(3b)^2$

c) $a^3 + b^3$

d) $(a + b)^3$

2) Find the missing number :-

a) $a^{\dots} \times a^7 = a^9$

b) $b^{-3} \times b^{\dots} = 1$

c) $\frac{b^{\dots}}{b^4} = b^3$

3) Find the value of X in Z of the following equations :-

a) $\sqrt{x} + 1 = 7$

b) $\sqrt{x} = 9$

c) $2x^2 + 1 = 33$

Unit 2

Q1 Choose the correct answer:-

- 42) What is the inequality that expresses the following situation ,
Farida needs at least two hours to complete the homework ?
a) $x < 2$ b) $x > 2$ c) $x \leq 2$ d) $x \geq 2$
- 43) What is the inequality that expresses that the temperature X
is less than 40° ?
a) $x < 40^\circ$ b) $x > 40^\circ$ c) $x \leq 40^\circ$ d) $x \geq 40^\circ$
- 44) What is the inequality that expresses that twice the number X
is less than 5 ?
a) $x - 2 < 5$ b) $x + 2 > 5$ c) $2x < 5$ d) $2x > 5$
- 45) If $-x < 5$, then which of the following is correct ?
a) $x < 5$ b) $x > 5$ c) $x < -5$ d) $x > -5$
- 46) If $X \in \mathbb{N}$, what is the solution set of inequality $-X > 3$?
a) $\{-4, -5, \dots\}$ b) $\{4, 5, 6, \dots\}$ c) $\{-3\}$ d) $\emptyset$
- 47) If $X - 1 > 4$, then $X = \dots\dots\dots$
a) 4 b) 3 c) 5 d) 7
- 48) Which of the following is equivalent to the inequality $\frac{X}{3} > 4$?
a) $x < 12$ b) $x > 12$ c) $x < \frac{4}{3}$ d) $x > \frac{4}{3}$
- 49) If $X > Y$, then $\frac{1}{X} \dots\dots\dots \frac{1}{Y}$
a) $<$ b) $>$ c) $=$ d) $\geq$
- 50) $(-3x^2)(4x^3) = \dots\dots\dots$
a) $12x$ b) $12x^5$ c) $-12x^5$ d) $-12x^6$
- 51) $(3a^4 b)(5a^2 b^2)(2a^3) = \dots\dots\dots$
a) $30a^{10} b^2$ b) $30a^9 b^3$ c) $60a^{11} b^3$ d) $15a^{10} b^3$

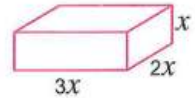
52) If the side length of a cube is $2b$, what is volume of the cube?

- a) $2b^3$ b) $8b^3$ c) $4b^3$ d) $4b^2$

53) $2(x+3) = \dots\dots\dots$

- a) $2x+3$ b) $2x^2+6x$ c) $2x+6$ d) $x+6$

54) What is the volume of the opposite cuboid ?



- a) $6x^3$ b) $6x$ c) $5x^3$ d) $6x^2$

55) What is the area of the opposite rectangle ?



- a) $12x-1$ b) $12x^2-4x$ c) $12x+4x$ d) $(12x)(4x)$

56) $x(x-1) + x = \dots\dots\dots$

- a) $2x^2$ b) x^2-x c) $x(2x-1)$ d) x^2

57) If $a+3b=7$, $c=3$, then what is the value of $a+3(b+c)$

- a) 10 b) 13 c) 15 d) 16

58) What is the number of terms in the expression resulting from the product of $(x-3)(x+4)$ in the simplest form ?

- a) 1 b) 2 c) 3 d) 4

59) If $(x-5)(x+2) = x^2+bx+c$, then $c = \dots\dots\dots$

- a) 10 b) 7 c) -10 d) -7

60) If $(3x-7)^2 = ax^2+bx+c$, then $b = \dots\dots\dots$

- a) 21 b) 42 c) -21 d) -42

61) I If $(x-3)(x+3) = x^2-k$, then $k = \dots\dots\dots$

- a) 6 b) 9 c) -6 d) -9

62) What is the coefficient of **ab** in the expression $(4a-5b)^2$?

- a) 20 b) 40 c) -20 d) -40



- 63) If $x-y=5$, $x+y=15$, then what is the value of x^2-y^2 ?
 a) 10 b) 20 c) 3 d) 75
- 64) If $(x+y)^2=16$, $xy=3$ then what is the value of x^2+y^2 ?
 a) 10 b) 48 c) 13 d) $5\frac{1}{3}$
- 65) If $y^2=7$, $x^2=10$, then what is the value of $(x+y)(x-y)$?
 a) 17 b) 17 c) 3 d) -3
- 66) If $(x+y)^2=26$, $x^2+y^2=20$, what is the value of xy ?
 a) 3 b) 6 c) 9 d) 12
- 67) $-12x^3 \div (-4x) = \dots\dots\dots$
 a) $-3x^2$ b) $3x^2$ c) $48x^4$ d) $-3x$
- 68) If $\frac{8x}{a} = 1$, then $a = \dots\dots\dots$
 a) 1 b) -1 c) $8x$ d) $-8x$
- 69) $\frac{a+b}{c} = \dots\dots\dots$
 a) $\frac{a}{c} + b$ b) $a + \frac{b}{c}$ c) $\frac{ab}{c}$ d) $\frac{a}{c} + \frac{b}{c}$
- 70) $(x^2 \div x) + x = \dots\dots\dots$
 a) $2x$ b) 0 c) $x+1$ d) $2x+1$
- 71) $(x^3+x^2) \div x^2 = \dots\dots\dots$
 a) x b) 0 c) $x+1$ d) $2x+1$
- 72) $\frac{3x^2-6x}{3x} = \dots\dots\dots$
 a) $-x^2$ b) $-x$ c) $x-2$ d) x^2-2x
- 73) $10ab^2 \div \dots\dots\dots = -2ab$
 a) $-5b$ b) $5b$ c) $-5b^2$ d) $-12ab$

Q2 Complete the following :-

- 1) $6x^2y = 2x \times \dots\dots\dots$
- 2) $-4b^3c^4 = 2bc^2 \times \dots\dots\dots$
- 3) $(x+2)(x+3) = \dots\dots\dots + 5x + 6$
- 4) $(a-7)(a-3) = a^2 - \dots\dots\dots + \dots\dots\dots$
- 5) $\dots\dots\dots \div 7a^3 = -5a^2$
- 6) $(15a+5) \div 5 = \dots\dots\dots$
- 7) $\frac{-24x^4}{\dots\dots\dots} = -6x$

Q3 Answer the following :-

1) Find the solution set in $\mathbb{N}$:-

- a) $x - 2 > 1$
- b) $2x - 5 > -7$

2) Find the solution set in $\mathbb{Z}$:-

- a) $2x + 5 \leq 11$
- b) $5 - 3x \geq 14$

3) Find the solution set in $\mathbb{Q}$:-

a) $x - 2 \leq 3x + 7$

b) $3(2x - 1) > 9$

4) Find in the simplest form :-

a) $(-3a^3b^2)(-2ab^4)$

b) $-3x(x-5)$

c) $-3a^2b(2a b^2 - 2b)$

d) $(3x+1)(x-3)$

e) $(x-7)(2x-1)$

f) $(x-6)^2$

g) $(2x-9)^2$

h) $-32a^3b^6 \div (-4a^3b^2)$

i) $(2x - 6x^2 - 8x^3) \div (2x)$

j) $\frac{18x^2y^2}{-2x^2y}$

k) $\frac{3xy^2 + 6x^2y - 9x^2y^2}{3xy}$

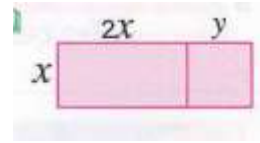
l) $\frac{x^2}{-x} + \frac{-4x}{x} - \frac{3x^3}{x^2}$

m) $(X^2 + 5x + 6) \div (x + 2)$

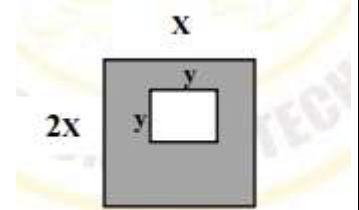
n)

5) Find in the simplest form $2a(3a-1) + 3a(a+2)$ then find the value of the expression if $a=2$.

- 6) Find in the simplest form the expression which represents the shaded part .



- 7) Find in the simplest form the expression which represents the shaded part .



- 8) If: $(x - 5)(x + 5) = x^2 + bx + c$, then what is the value of b ?
- 9) If $(2x + 1)$ is a factor of the expression $(2x^2 - 7x - 4)$, then find the other factor ?
- 10) Divide $(x^2 - 64)$ by $(x - 8)$

Unit 3

Areas

$$\text{Area of rectangle} = L \times W$$

$$\text{Area of triangle} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$\text{Area of parallelogram} = \text{base} \times \text{height}$$

$$\text{Area of rhombus} = \text{base} \times \text{height}$$

$$\text{Area of rhombus} = \frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2 = \frac{1}{2} \times d \times d$$

$$d_1 = \frac{2 \times \text{area}}{d_2} \quad d_2 = \frac{2 \times \text{area}}{d_1}$$

$$\text{Area of square} = S \times S = S^2$$

$$\text{Area of square} = \frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2 = \frac{1}{2} \times d^2$$

$$d = \sqrt{2 \times \text{area}}$$

$$\text{Area of trapezium} = \frac{1}{2} \times (b_1 + b_2) \times h$$

$$\text{Area of trapezium} = \text{middle base} \times h$$

$$\text{Middle base of trapezium} = \frac{1}{2} \times (b_1 + b_2)$$

$$\text{base}_1 \text{ of trapezium} = (2 \times \text{middle base}) - \text{base}_2$$

Reflection

(X,Y) reflect by X-axis $(X,-Y)$

(X,Y) reflect by Y-axis $(-X,Y)$

$(X,0)$ reflect by X-axis $(X,0)$ same point.

$(0,Y)$ reflect by Y-axis $(0,Y)$ same point.

Translation

Change X-coordinate

To move the point left & right

Change Y-coordinate

To move the point up & down

Rotation

(X,Y) by rotation $(O, 90^\circ)$ $(-Y,X)$

(X,Y) by rotation $(O, -90^\circ), (O, 270^\circ)$ $(Y, -X)$

(X,Y) by rotation $(O, +180^\circ)$ $(-X, -Y)$

(X,Y) by rotation $(O, +360^\circ)$ (X,Y)

Q1 Choose the correct answer:-

1) If the area of rhombus is 100 cm^2 , what is the product of its diagonals ?

- a) 50 b) 25 c) 100 d) 200

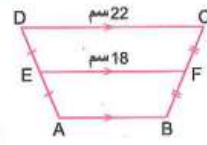
2) If the area of rhombus is 20 cm^2 and the length of one of its diagonals is 5 cm , what is the length of the other diagonal diagonals ?

- a) 4cm b) 8cm c) 10cm d) 15cm

3) Area of square whose side length area of square whose diagonal is 5 cm

- a) = b) > c) <

4) from the opposite figure ,
what is the length of AB ?



- a) 26cm b) 28cm c) 20cm d) 14cm

5) Which of the following is the image of the point $(-1, 3)$ by reflection in the X-axis ?

- a) $(-1, -3)$ b) $(1, -3)$ c) $(1, 3)$ d) $(3, -1)$

6) Which of the following is the image of the point (a, b) by reflection in the X-axis ?

- a) $(-a, -b)$ b) $(-a, b)$ c) $(a, -b)$ d) $(b, -a)$

7) Which of the following points remains the same when reflected in the Y-axis ?

- a) $(2, -3)$ b) $(3, 2)$ c) $(0, 7)$ d) $(-3, 0)$

- 8) Which of the following points remains the same when reflected in the X-axis ?
a) (2, -3) b) (3, 2) c) (0, 7) d) (-3, 0)
- 9) If the image of the point (7, 3a-12) is the same when reflected in X-axis , what is the value of a?
a) 4 b) 12 c) -4 d) 3
- 10) What is the image of the point (2, -3) by reflection in the X-axis followed by reflection in the Y-axis ?
a) (-2, -3) b) (2, 3) c) (-2, 3) d) (3, 2)
- 11) What is the image of the point (1, 7) by translation of 3 units in the positive direction of Y-axis ?
a) (4, 7) b) (1, 10) c) (1, 4) d) (-2, 7)
- 12) What is the image of the point (5, -2) by translation of 5 units in the negative direction of X-axis ?
a) (10, -2) b) (5, -7) c) (5, -3) d) (0, -2)
- 13) What is the image of the point (2, -1) by translation (x-3 , y+4)?
a) (-3, 4) b) (-1, 3) c) (-1, 5) d) (5, 3)
- 14) What is the image of the point (0, -3) by translation (-1, 2)?
a) (-1, 1) b) (-1, -1) c) (1, 1) d) (1, -1)
- 15) What is the image of the point (-1, 0) by translation (1, 0) followed by translation (2, -3)?
a) (0, 0) b) (1, 0) c) (-1, 0) d) (2, -3)
- 16) What is the image of the point (-7, 2) by rotation R(O, 180°) ?
a) (7, -2) b) (-2, 7) c) (-2, -7) d) (-7, -2)

- 17) Identify rotation is the rotation around the origin O by an angle of measure
- a) 90° b) 180° c) 270° d) 360°
- 18) What is the image of the point $(-4, 2)$ when rotated around the origin O by an angle of measure 90° anti-clockwise ?
- a) $(-2, 4)$ b) $(-2, -4)$ c) $(4, 2)$ d) $(-4, -2)$
- 19) Which of the following rotations makes the point A' $(X, -Y)$ the image of A $(X, -Y)$?
- a) $R(O, 90^\circ)$ b) $R(O, -90^\circ)$ c) $R(O, 180^\circ)$ d) $R(O, 360^\circ)$
- 20) What is the image of the point $(-4, 5)$ under rotation $R(O, 90^\circ)$ followed by rotation $R(O, 180^\circ)$?
- a) $(5, 4)$ b) $(5, -4)$ c) $(4, -5)$ d) $(-5, -4)$

Q2 Answer the following :-

- 1) Find the area of the following figures :-

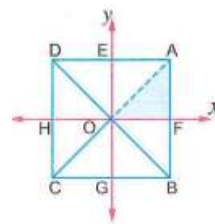


- 2) Find the area of rhombus with diagonal lengths of 6 cm and 10 cm.
- 3) Find the height of a rhombus with side length of 15 cm and diagonal lengths of 18 cm and 24 cm.
- 4) A trapezium with a height of 3 cm and a middle base length of 10 cm, find its area.
- 5) A trapezium has an area of 63 square meter and the length of its parallel bases are 10 m and 8 m. Calculate its height.

6) From the opposite figure :-

a) The image of $\triangle AFO$ by reflection in the Y-axis is

- a) $\triangle AOE$ b) $\triangle DHO$ c) $\triangle BFO$ d) $\triangle OBG$



b) The image of $\triangle AFO$ by reflection in the X-axis is

- a) $\triangle BFO$ b) $\triangle AOE$ c) $\triangle DHO$ d) $\triangle CHO$

7) Draw an angle whose measure is 45° then bisect it.

8) Draw an angle whose measure is 120° then bisect it.

9) Draw line segment AB whose length = 5cm then bisect it.

10) Draw the triangle ABC that $AB=7\text{cm}$, $BC=9\text{cm}$, $AC=4\text{cm}$, then determine the type of triangle according its angles.

11) Draw the triangle ABC that $AB=5\text{cm}$, $m(\angle A)=120^\circ$, $m(\angle B)=30^\circ$, then determine the type of triangle according its sides.

12) Draw the triangle ABC that $AB=7\text{cm}$, $BC=5\text{cm}$, $m(\angle ABC)=80^\circ$.

13) Draw the triangle ABC that $A(-6,6)$, $B(-2,2)$, $C(4,1)$, then draw its image by reflection Y-axis.



- 14)** Draw the triangle ABC with vertices: A(4,4) , B(0,2) , C(6,-2) , then draw its image by translation (X-4 , Y+1).
- 15)** Draw the triangle ABC with vertices: A (-1,2), B (3,1),C (0,4), then draw its image under rotation R (O,90°)

Unit 4**Q1 Choose the correct answer:-**

- 1) Drawing a card from a set of identical numbered cards without knowing the numbers written on the cards :
- a) a random experiment b) not a random experiment c) an impossible event d) a certain event
- 2) Selecting a ball from a basket containing 5 identical balls all are yellow :
- a) a random experiment b) not a random experiment c) an impossible event d) a simple event
- 3) In the experiment of choosing a digit of the number 5742 randomly , what is the sample space ?
- a) {2, 4, 5, } b) {2, 4, 5, 7} c) {5742} d) {57, 74, 42}
- 4) In the experiment of rolling a fair die once, which of the following events is a simple event ?
- a) event of getting a number greater than 6 b) event of getting an even prime number
- c) event of getting a number less than or equal to 2 d) event of getting an odd number

- 5) When drawing a card from 10 identical cards numbered from 1 to 10 , which of the following is the event of drawing a number divisible by 2 ?
- a) {2, 4, 6, 8, } b) {2, 6} c) {2, 4, 6, 8, 10} d) {2, 4, 6}
- 6) In the experiment of rolling a fair die once, and observing the number shown on the upper face , which of the following events is a certain event ?
- a) {2, 4, 6} b) {1} c) {1, 3, 5} d) {1, 2, 3, 4, 5, 6}
- 7) If you are thinking of purchasing one pen from a set of identical pens containing 5 red pens, 2 blue pens, and 3 black pens, and you select this pen randomly what is the probability that the pen is blue?
- a) $\frac{1}{4}$ b) $\frac{1}{5}$ c) $\frac{2}{15}$ d) $\frac{1}{15}$
- 8) In an experiment of rolling a fair die once , what is the probability of getting a number divisible by 2 ?
- a) zero b) $33\frac{1}{3}\%$ c) 50 % d) 70 %
- 9) If A is an event from a random experiment with equal chances of occurrence, and the probability of event A is 40%, the number of elements of the sample space is 15, what is the number of Elements of event A ?
- a) 2 b) 4 c) 6 d) 10

10) A ball is drawn randomly from a box containing 35 identical balls, of which 7 are white and the remainder are red and black, What is the probability that the drawn ball is not white ?

- a) $\frac{1}{6}$ b) $\frac{1}{5}$ c) $\frac{4}{5}$ d) $\frac{34}{35}$

11) A card carrying a letter from the word "NORHAN" is drawn randomly. What is the probability that this letter is (N)?

- a) $\frac{1}{6}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{2}{5}$

12) In an experiment of rolling a fair die once, what is the probability of appearing a number less than 5?

- a) $\frac{1}{6}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{2}$

13) Which of the following could be a probability of an event occurring?

- a) 1.2 b) -0.4 c) $\frac{2}{3}$ d) 213%

14) In an experiment of rolling a fair die and observing the upper face, the probability of rolling a number that is not equal to 2 is

- a) $\frac{1}{6}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{5}{6}$

- 15) If a fair coin is tossed 400 times, the closest number of times that heads is expected to appear from the following is
- a) 300 b) 90 c) 188 d) 270

Q2 Complete the following:-

- 1) In the experiment of tossing a fair coin twice in consecutive where the head is H and the tail is T, the sample space for this experiment is
- 2) In the experiment of rolling a fair die twice in consecutive and observing the number showing on the upper face, the number of elements in the sample space is
- 3) In the experiment of forming a 2-digit number from the set of numbers {2, 3, 4} the number of elements in the sample space is
- 4) If the probability of an event occurring equals the probability of the same event not occurring, then the probability of that event =
- 5) The probability of an impossible event =
- 6) The probability of a certain event =

Q3 Answer the following:-

1) A card was drawn randomly from a set of identical cards numbered from 5 to 14 , find the probability that the drawn card carries:

- a) an odd number.
- b) An even number greater than 9.
- c) A prime number.
- d) A perfect square number.
- e) A number less than 5.

2) The opposite figure represents a spinning disc game.

- a) Calculate the probability that the pointer stops at the colour:

(a) Red. (b) Green. (c) Yellow.



- b) Calculate the probability that the pointer does not stop at the colour red.

Answers

Unit 1

Q1 Choose the correct answer:-

- 1) $7^2 \times 7^3 = \dots\dots\dots$
 a) 7^6 b) 14^5 **c) 7^5** d) 49^6
- 2) $5^8 \div 5^4 = \dots\dots\dots$
 a) 14 **b) 5^4** c) 1^2 d) 5^2
- 3) $3^5 \times \dots\dots\dots = 3^{10}$
 a) 3^2 **b) 3^5** c) 3^{15} d) 3^3
- 4) $(-7)^9 \div \dots\dots\dots = (-7)^3$
a) 7^6 b) -7^3 c) $(-7)^{12}$ d) 7^{27}
- 5) Half of the number $2^6 = \dots\dots\dots$
 a) 1^6 b) 2^3 c) 1^3 **d) 2^5**
- 6) Which of the following equals $(-9)^2$?
 a) -81 b) -18 c) 18 **d) 81**
- 7) If $7^n \times a^m = a \times 7 \times a \times a \times 7$, what is the value of $n + m$?
 a) 3 b) 2 **c) 5** d) 6
- 8) Which of the following equals -3^4 ?
 a) -12 b) -7 **c) -81** d) 81
- 9) Which of the following equals 2^{-4} ?
 a) -16 b) 16 c) $\frac{1}{8}$ **d) $\frac{1}{16}$**
- 10) Which of the following is the multiplicative inverse of $(-1)^3$?
a) $(-1)^3$ b) $(-1)^2$ c) 1^3 d) 1^2
- 11) Which of the following is the additive inverse of 4^{-3} ?
 a) $(-4)^3$ **b) $(-4)^{-3}$** c) 4^3 d) 4^{-3}
- 12) Which of the following equals $a^{-1} \times a^3$?
a) a^2 b) a^4 c) $\frac{1}{a^2}$ d) $\frac{1}{a^3}$

13) Which of the following equals $\frac{y^{-2}}{y^{-6}}$?

a) y^4

b) y^8

c) $\frac{1}{y^4}$

d) $\frac{1}{y^8}$

14) $5a^0 - (5a)^0 = \dots\dots\dots$

a) 0

b) 5

c) 4

d) 10

15) Which of the following equals the third of the number 3^x ?

a) 1^x

b) $(\frac{1}{3})^x$

c) 3^{x-1}

d) 3^{x+1}

16) Which of the following equals one quarter of the number 2^{20} ?

a) 2^5

b) 2^{10}

c) 2^{18}

d) 2^{19}

17) Which of the following equals $2^a + 2^a$?

a) 4^{2a}

b) 2^a

c) 2^{2a}

d) 2^{a+1}

18) Which of the following numbers is written scientific notation ?

a) $1.5 \times 10^{4.5}$

b) 15×10^5

c) 31.5×10^5

d) 3.15×10^5

19) Which of the following equals 8 million in scientific notation ?

a) 8×10^7

b) 8×10^6

c) 8×10^8

d) 8×10^{-6}

20) Which of the following equals 0.000073 ?

a) 7.3×10^{-5}

b) 7.3×10^6

c) 7.3×10^5

d) 7.3×10^{-6}

21) If $6.3 \times 10^n = 0.00063$, what is the value of n ?

a) -4

b) -3

c) 4

d) 3

22) If the number $y \times 10^{-9}$ is written in scientific notation, then $y = \dots$

a) 6

b) 60

c) 0.6

d) 600

23) Which of the following equals 6000×50 ?

a) 30×10^5

b) 30×10^3

c) 300×10^2

d) 3×10^5

24) If $\sqrt{x} = 5$, then $x = \dots\dots\dots$

a) 10

b) 20

c) 25

d) ± 25

25) Which of the following is the greatest ?

a) 6.3×10^5

b) 5.2×10^5

c) 9.8×10^4

d) 7.3×10^4



26) What is the value of $\sqrt{(-5)^2}$?

a) 5

b) -5

c) 25

d) ± 5

27) Which of the following equals $\sqrt{16x^2}$?

a) $4x$ b) $-4x$ c) $4x^2$ d) $4|x|$

28) Which of the following is the multiplicative inverse of $\sqrt{\frac{9}{25}}$?

a) $-\frac{5}{3}$ b) $\frac{5}{3}$ c) $-\frac{3}{5}$ d) $\frac{3}{5}$

29) Which of the following is the additive inverse of $-\sqrt{0.16}$?

a) 0.4

b) -0.4

c) 0.8

d) -0.8

30) If a , b are two square roots of the number c , then $a + b = \dots$

a) $2a$ b) $2b$

c) 0

d) 1

31) If $x = \sqrt{\frac{1}{9}}$, what is the value of x^3 ?

a) $\frac{1}{3}$ b) $\frac{1}{9}$ c) $\frac{1}{27}$ d) $\frac{1}{81}$

32) $\sqrt{4 + \dots} = 4$

a) 0

b) 4

c) 12

d) 16

33) $\sqrt{36} + \sqrt{16} = \sqrt{\dots}$

a) 52

b) 10

c) 100

d) 120

34) If $x^3 = -27$, what is the value of x ?

a) 3

b) -9

c) -3

d) ± 3

35) What is the value of $\sqrt[3]{\sqrt{64}}$?

a) 2

b) 4

c) 8

d) 64

36) If $\sqrt[3]{b} = -8$, what is the value of b ?

a) 2

b) -2

c) -512

d) 64

37) If $\sqrt[3]{y} = -\sqrt{25}$, what is the value of y ?

a) 5

b) -5

c) -125

d) 125



38) $|\sqrt[3]{-125}| = \sqrt{\dots\dots\dots}$

a) 5

b) -5

c) -25

d) 25

39) If $a = 5^3$, then what is the value of $\sqrt[3]{a}$?

a) 5

b) 3

c) 125

d) 25

40) If $x^2 = 64$, then $\sqrt[3]{x} = \dots\dots\dots$

a) 2

b) -2

c) 4

d) ± 2

41) $\sqrt[3]{64 - \dots} = 3$

a) 9

b) 27

c) 37

d) 55

Q2 Complete the following:-

1) $(\frac{3}{5})^3 = \frac{27}{125}$

2) $\frac{5 \times 5^3}{5^4} = \frac{5^4}{5^4} = 5^0 = 1$

3) $\frac{5^7 \times 5^2}{5^3 \times 5^5} = \frac{5^9}{5^8} = 5$

4) $\frac{(-a)^4 \times a^6}{(-a)^3 \times (-a)^5} = \frac{a^{10}}{a^8} = a^2$

5) $\frac{x^7 \times x^{11}}{x^3 \times x^5} = \frac{x^{18}}{x^8} = x^{10}$

6) Double the number 2^{10} is 2^{11}

7) half the number 2^{10} is 2^9

8) $7^{10} \times 7^{-10} = 3^0$

9) $2x^{-2} y^{-3} = \frac{2}{x^2 y^3}$

10) If $x = y$, then $(-3)^{x-y} = 1$

11) the multiplicative inverse of 5^{-1} is 5



Q3 Answer the following:-

1) If $a=2$, $b=-5$, find the numerical value of

a) $3b^2$

a) $3 \times (-5)^2 = 75$

b) $(3b)^2$

b) $(3 \times -5)^2 = 225$

c) $a^3 + b^3$

c) $2^3 + (-5)^3 = -117$

d) $(a + b)^3$

d) $[2 + (-5)] = -27$

2) Find the missing number :-

a) $a^2 \times a^7 = a^9$

b) $b^{-3} \times b^3 = 1$

c) $\frac{b^7}{b^4} = b^3$

3) Find the value of X in Z of the following equations :-

a) $\sqrt{x} + 1 = 7$

$\sqrt{x} = 7 - 1$

$\sqrt{x} = 6$, $x = 36$

b) $\sqrt{x} = 9$, $x = 81$

c) $2x^2 + 1 = 33$

$2x^2 = 33 - 1$

$2x^2 = 32$

$x^2 = 32 \div 2 = 16$, $x = \sqrt{16} = \pm 4$

Unit 2

Q1 Choose the correct answer:-

- 1) What is the inequality that expresses the following situation , Farida needs at least two hours to complete the homework ?
 a) $x < 2$ b) $x > 2$ c) $x \leq 2$ **d) $x \geq 2$**
- 2) What is the inequality that expresses that the temperature X is less than 40° ?
a) $x < 40^\circ$ b) $x > 40^\circ$ c) $x \leq 40^\circ$ d) $x \geq 40^\circ$
- 3) What is the inequality that expresses that twice the number X is less than 5 ?
 a) $x - 2 < 5$ b) $x + 2 > 5$ **c) $2x < 5$** d) $2x > 5$
- 4) If $-x < 5$, then which of the following is correct ?
 a) $x < 5$ b) $x > 5$ c) $x < -5$ **d) $x > -5$**
- 5) If $X \in \mathbb{N}$, what is the solution set of inequality $-X > 3$?
 a) $\{-4, -5, \dots\}$ b) $\{4, 5, 6, \dots\}$ c) $\{-3\}$ **d) $\emptyset$**
- 6) If $X - 1 > 4$, then $X = \dots\dots\dots$
 a) 4 b) 3 c) 5 **d) 7**
- 7) Which of the following is equivalent to the inequality $\frac{X}{3} > 4$?
 a) $x < 12$ **b) $x > 12$** c) $x < \frac{4}{3}$ d) $x > \frac{4}{3}$
- 8) If $X > Y$, then $\frac{1}{X} \dots\dots\dots \frac{1}{Y}$
a) $<$ b) $>$ c) $=$ d) $\geq$
- 9) $(-3x^2)(4x^3) = \dots\dots\dots$
 a) $12x$ b) $12x^5$ **c) $-12x^5$** d) $-12x^6$
- 10) $(3a^4 b)(5a^2 b^2)(2a^3) = \dots\dots\dots$
 a) $30a^{10} b^2$ **b) $30a^9 b^3$** c) $60a^{11} b^3$ d) $15a^{10} b^3$

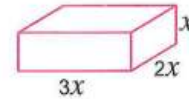
11) If the side length of a cube is $2b$, what is volume of the cube?

- a) $2b^3$ **b) $8b^3$** c) $4b^3$ d) $4b^2$

12) $2(x+3) = \dots\dots\dots$

- a) $2x+3$ b) $2x^2+6x$ **c) $2x+6$** d) $x+6$

13) What is the volume of the opposite cuboid ?



- a) $6x^3$** b) $6x$ c) $5x^3$ d) $6x^2$

14) What is the area of the opposite rectangle ?



- a) $12x-1$ **b) $12x^2-4x$** c) $12x+4x$ d) $(12x)(4x)$

15) $x(x-1) + x = \dots\dots\dots$

- a) $2x^2$ b) x^2-x c) $x(2x-1)$ **d) x^2**

16) If $a+3b=7$, $c=3$, then what is the value of $a+3(b+c)$

- a) 10 b) 13 c) 15 **d) 16**

17) What is the number of terms in the expression resulting from the product of $(x-3)(x+4)$ in the simplest form ?

- a) 1 b) 2 **c) 3** d) 4

18) If $(x-5)(x+2) = x^2+bx+c$, then $c = \dots\dots\dots$

- a) 10 b) 7 **c) -10** d) -7

19) If $(3x-7)^2 = ax^2+bx+c$, then $b = \dots\dots\dots$

- a) 21 b) 42 c) -21 **d) -42**

20) I If $(x-3)(x+3) = x^2-k$, then $k = \dots\dots\dots$

- a) 6 **b) 9** c) -6 d) -9

21) What is the coefficient of **ab** in the expression $(4a-5b)^2$?

- a) 20 b) 40 c) -20 **d) -40**

22) If $x-y=5$, $x+y=15$, then what is the value of x^2-y^2 ?

- a) 10 b) 20 c) 3 d) 75

23) If $(x+y)^2=16$, $xy=3$ then what is the value of x^2+y^2 ?

- a) 10 b) 48 c) 13 d) $5\frac{1}{3}$

24) If $y^2=7$, $x^2=10$, then what is the value of $(x+y)(x-y)$?

- a) 17 b) 17 c) 3 d) -3

25) If $(x+y)^2=26$, $x^2+y^2=20$, what is the value of xy ?

- a) 3 b) 6 c) 9 d) 12

26) $-12x^3 \div (-4x) = \dots\dots\dots$

- a) $-3x^2$ b) $3x^2$ c) $48x^4$ d) $-3x$

27) If $\frac{8x}{a} = 1$, then $a = \dots\dots\dots$

- a) 1 b) -1 c) $8x$ d) $-8x$

28) $\frac{a+b}{c} = \dots\dots\dots$

- a) $\frac{a}{c} + b$ b) $a + \frac{b}{c}$ c) $\frac{ab}{c}$ d) $\frac{a}{c} + \frac{b}{c}$

29) $(x^2 \div x) + x = \dots\dots\dots$

- a) $2x$ b) 0 c) $x+1$ d) $2x+1$

30) $(x^3+x^2) \div x^2 = \dots\dots\dots$

- a) x b) 0 c) $x+1$ d) $2x+1$

31) $\frac{3x^2-6x}{3x} = \dots\dots\dots$

- a) $-x^2$ b) $-x$ c) $x-2$ d) x^2-2x

32) $10ab^2 \div \dots\dots\dots = -2ab$

- a) $-5b$ b) $5b$ c) $-5b^2$ d) $-12ab$

Q2 Complete the following :-

- 1) $6x^2y = 2x \times 3xy$
- 2) $-4b^3c^4 = 2bc^2 \times -2b^2c^2$
- 3) $(x+2)(x+3) = x^2 + 5x + 6$
- 4) $(a-7)(a-3) = a^2 - 10a + 21$
- 5) $-35a^5 \div 7a^3 = -5a^2$
- 6) $(15a+5) \div 5 = 3a + 1$
- 7) $\frac{-24x^4}{4x^3} = -6x$

Q3 Answer the following :-

- 1) Find the solution set in $\mathbb{N}$:-

a) $x - 2 > 1$

$$x > 2+1$$

$$x > 3$$

$$S.S = \{4, 5, 6, \dots, \dots, \dots\}$$

b) $2x - 5 > -7$

$$2x > -7+5$$

$$2x > -2$$

$$x > -2 \div 2$$

$$x > -1$$

$$S.S = \{0, 1, 2, 3, \dots, \dots, \dots\}$$

2) Find the solution set in $\mathbb{Z}$:-

a) $2x + 5 \leq 11$

$$2x \leq 11 - 5$$

$$2x \leq 6$$

$$x \leq 6 \div 2$$

$$x \leq 3$$

$$S.S = \{3, 2, 1, 0, -1, -2, \dots\}$$

b) $5 - 3x \geq 14$

$$5 - 3x \geq 14$$

$$-3x \geq 14 - 5$$

$$-3x \geq 9$$

$$x \geq 9 \div (-3)$$

$$x \leq -3$$

$$S.S = \{-3, -4, -5, \dots\}$$

3) Find the solution set in $\mathbb{Q}$:-

a) $x - 2 \leq 3x + 7$

$$x - 3x \leq 7 + 2$$

$$-2x \leq 9$$

$$x \leq 9 \div (-2)$$

$$x \geq -4.5$$

$$S.S = X : X \in \mathbb{Q}, x \geq -4.5$$



b) $3(2x - 1) > 9$

$$6x - 3 > 9$$

$$6x > 9 + 3$$

$$6x > 12$$

$$x > 12 \div 6$$

$$x > 2$$

$$S.S = \{X: X \in Q, x > 2\}$$

4) Find in the simplest form :-

o) $(-3a^3b^2)(-2ab^4) = 6a^4b^6$

p) $-3x(x-5) = -3x^2 + 15x$

a) $-3a^2b(2a b^2 - 2b) = -6a^3 b^3 + 6a^2 b^2$

a) $(3x+1)(x-3) = 3x^2 - 8x - 3$

b) $(x-7)(2x-1) = 2x^2 - 15x + 7$

c) $(x-6)^2 = x^2 - 12x + 36$

d) $(2x-9)^2 = 4x^2 - 36x + 81$

e) $-32a^3b^6 \div (-4a^3b^2) = 8b^4$

f) $(2x - 6x^2 - 8x^3) \div (2x) = 1 - 3x - 4x^2$

g) $\frac{18x^2y^2}{-2x^2y} = -9y$

h) $\frac{3xy^2 + 6x^2y - 9x^2y^2}{3xy} = y + 2x - 3xy$

i) $\frac{x^2}{-x} + \frac{-4x}{x} - \frac{3x^3}{x^2} = -x - 4 - 3x = -4x - 4$

j) $(X^2+5x+6) \div (x+2) = x + 3$

- 5) Find in the simplest form $2a(3a-1)+3a(a+2)$ then find the value of the expression if $a=2$.

$$=6a^2 - 2a + 3a^2 + 6a$$

$$=9a^2 + 4a$$

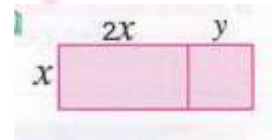
$$\text{If } a = 2$$

$$9 \times 2^2 + 4 \times 2 = 44$$

- 6) Find in the simplest form the expression which represents the shaded part .

$$= x(2x+y)$$

$$= 2x^2 + xy$$

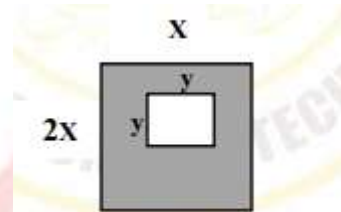


- 7) Find in the simplest form the expression which represents the shaded part .

$$\text{area 1} = 2X \times X = 2X^2$$

$$\text{area 2} = Y \times X = XY$$

$$\text{area of shaded part} = 2X^2 - XY$$



- 8) If: $(x - 5)(x + 5) = x^2 + bx + c$, then what is the value of b ?

$$b = \text{zero}$$

- 9) If $(2x + 1)$ is a factor of the expression $(2x^2 - 7x - 4)$, then find the other factor ?

$$(x-4)$$

- 10) Divide $(x^2 - 64)$ by $(x - 8)$

$$(x+8)$$

Unit 3

Q1 / Choose the correct answer:-

1) If the area of rhombus is 100 cm^2 , what is the product of its diagonals ?

- a) 50 b) 25 c) 100 **d) 200**

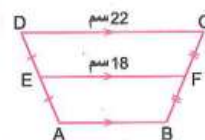
2) If the area of rhombus is 20 cm^2 and the length of one of its diagonals is 5cm , what is the length of the other diagonal diagonals ?

- a) 4cm **b) 8cm** c) 10cm d) 15cm

3) Area of square whose side length 4cm area of square whose diagonal is 5cm

- a) = **b) >** c) <

4) from the opposite figure , what is the length of AB ?



- a) 26cm b) 28cm c) 20cm **d) 14cm**

5) Which of the following is the image of the point $(-1,3)$ by reflection in the X-axis ?

- a) $(-1,-3)$** b) $(1,-3)$ c) $(1,3)$ d) $(3,-1)$

6) Which of the following is the image of the point (a,b) by reflection in the X-axis ?

- a) $(-a,-b)$ b) $(-a,b)$ **c) $(a,-b)$** d) $(b,-a)$

7) Which of the following points remains the same when reflected in the Y-axis ?

- a) $(2,-3)$ b) $(3,2)$ **c) $(0,7)$** d) $(-3,0)$

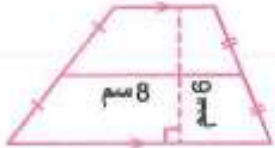


- 8) Which of the following points remains the same when reflected in the X-axis ?
a) (2,-3) b) (3,2) c) (0,7) **d) (-3,0)**
- 9) If the image of the point (7,3a-12) is the same when reflected in X-axis , what is the value of a?
a) 4 b) 12 c) -4 d) 3
- 10) What is the image of the point (2,-3) by reflection in the X-axis followed by reflection in the Y-axis ?
a) (-2,-3) b) (2,3) **c) (-2,3)** d) (3,2)
- 11) What is the image of the point (1,7) by translation of 3 units in the positive direction of Y-axis ?
a) (4,7) **b) (1,10)** c) (1,4) d) (-2,7)
- 12) What is the image of the point (5,-2) by translation of 5 units in the negative direction of X-axis ?
a) (10,-2) b) (5,-7) c) (5,-3) **d) (0,-2)**
- 13) What is the image of the point (2,-1) by translation (x-3 , y+4)?
a) (-3,4) **b) (-1,3)** c) (-1,5) d) (5,3)
- 14) What is the image of the point (0,-3) by translation (-1, 2)?
a) (-1,1) **b) (-1,-1)** c) (1,1) d) (1,-1)
- 15) What is the image of the point (-1,0) by translation (1,0) followed by translation (2,-3)?
a) (0,0) b) (1,0) c) (-1,0) **d) (2,-3)**
- 16) What is the image of the point (-7,2) by rotation R(O,180°) ?
a) (7,-2) b) (-2,7) c) (-2,-7) d) (-7,-2)

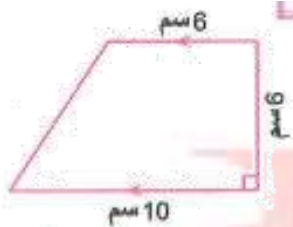
- 17) Identify rotation is the rotation around the origin O by an angle of measure
- a) 90° b) 180° c) 270° d) 360°
- 18) What is the image of the point $(-4, 2)$ when rotated around the origin O by an angle of measure 90° anti-clockwise ?
- a) $(-2, 4)$ b) $(-2, -4)$ c) $(4, 2)$ d) $(-4, -2)$
- 19) Which of the following rotations makes the point A' $(X, -Y)$ the image of A $(X, -Y)$?
- a) $R(O, 90^\circ)$ b) $R(O, -90^\circ)$ c) $R(O, 180^\circ)$ d) $R(O, 360^\circ)$
- 20) What is the image of the point $(-4, 5)$ under rotation $R(O, 90^\circ)$ followed by rotation $R(O, 180^\circ)$?
- a) $(5, 4)$ b) $(5, -4)$ c) $(4, -5)$ d) $(-5, -4)$

Q2 / Answer the following :-

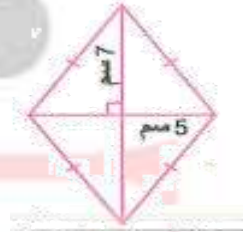
- 1) Find the area of the following figures :-



$$8 \times 6 = 48 \text{ cm}^2$$



$$\frac{1}{2} \times (6+10) \times 6 = 48 \text{ cm}^2$$



$$\frac{1}{2} \times 14 \times 10 = 70 \text{ cm}^2$$



$$\frac{1}{2} \times 10^2 = 50 \text{ cm}^2$$

- 2) Find the area of rhombus with diagonal lengths of 6 cm and 10 cm.

$$\text{Area} = \frac{1}{2} \times 6 \times 10 = 30 \text{ cm}^2$$

- 3) Find the height of a rhombus with side length of 15 cm and diagonal lengths of 18 cm and 24 cm.

$$\text{Area} = \frac{1}{2} \times 18 \times 24 = 216 \text{ cm}^2$$

$$\text{Side} = 216 \div 15 = 14.4$$

- 4) A trapezium with a height of 3 cm and a middle base length of 10 cm, find its area.

$$\text{Area} = 3 \times 10 = 30 \text{ cm}^2$$

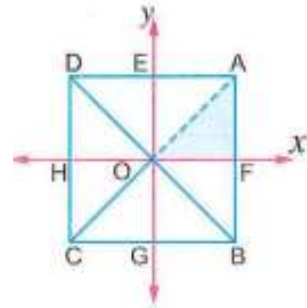
- 5) A trapezium has an area of 63 square meter and the length of its parallel bases are 10 m and 8 m. Calculate its height.

$$\text{Middle base} = \frac{1}{2} \times (8+10) = 9\text{cm}$$

$$\text{Height} = 63 \div 9 = 7\text{cm}$$

- 6) From the opposite figure :-

a) The image of $\triangle AFO$ by reflection in the Y-axis is



- a) $\triangle AOE$ b) $\triangle DHO$ c) $\triangle BFO$ d) $\triangle OBG$

b) The image of $\triangle AFO$ by reflection in the X-axis is

- a) $\triangle BFO$ b) $\triangle AOE$ c) $\triangle DHO$ d) $\triangle CHO$

- 7) Draw an angle whose measure is 45° then bisect it.

Draw by yourself.

- 8) Draw an angle whose measure is 120° then bisect it.

Draw by yourself.

- 9) Draw line segment AB whose length = 5cm then bisect it.

Draw by yourself.

- 10) Draw triangle ABC that $AB=7\text{cm}$, $BC=9\text{cm}$, $AC=4\text{cm}$, then determine the type of triangle according its angles.

Draw by yourself.

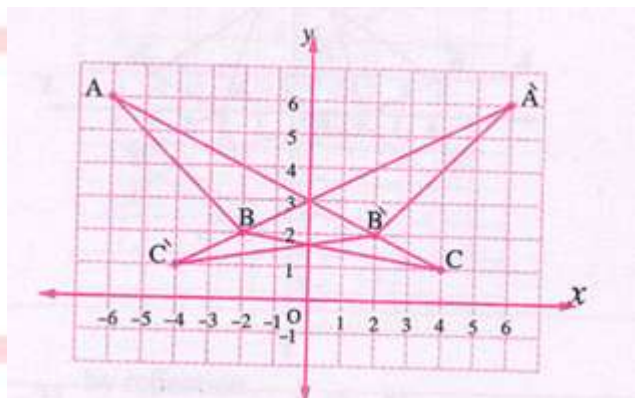
- 11) Draw triangle ABC that $AB=5\text{cm}$, $m(\angle A)=120^\circ$, $m(\angle B)=30^\circ$, then determine the type of triangle according its sides.

Draw by yourself.

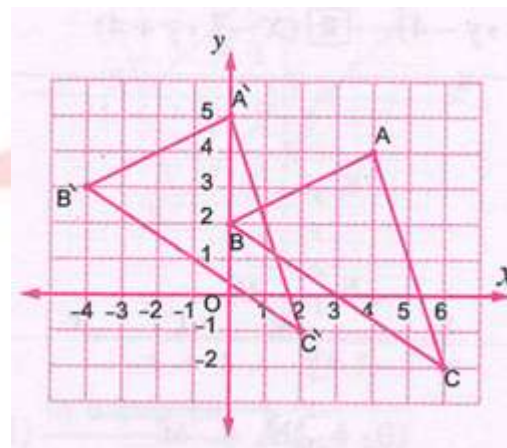
- 12) Draw triangle ABC that $AB=7\text{cm}$, $BC=5\text{cm}$, $m(\angle ABC)=80^\circ$.

Draw by yourself.

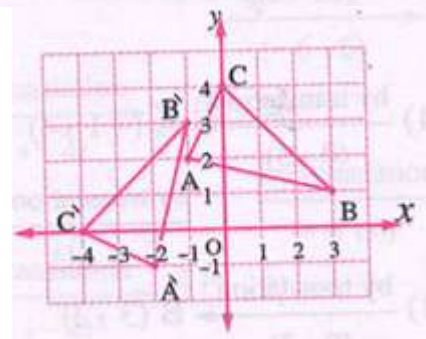
- 16) Draw the triangle ABC that $A(-6,6)$, $B(-2,2)$, $C(4,1)$, then draw its image by reflection Y-axis.



- 13) Draw the triangle ABC with vertices: $A(4,4)$, $B(0,2)$, $C(6,-2)$, then draw its image by translation $(X-4 , Y+1)$.



- 14) Draw the triangle ABC with vertices: $A(-1,2)$, $B(3,1)$, $C(0,4)$, then draw its image under rotation $R(O, 90^\circ)$



Unit 4**Q1 Choose the correct answer:-**

- 1) Drawing a card from a set of identical numbered cards without knowing the numbers written on the cards :
- a) a random experiment b) not a random experiment c) an impossible event d) a certain event
- 2) Selecting a ball from a basket containing 5 identical balls all are yellow :
- a) a random experiment b) not a random experiment c) an impossible event d) a simple event
- 3) In the experiment of choosing a digit of the number 5742 randomly , what is the sample space ?
- a) {2,4,5,} b) {2,4,5,7} c) {5742} d) {57,74,42}
- 4) In the experiment of rolling a fair die once, which of the following events is a simple event ?
- a) event of getting a number greater than 6 b) event of getting an even prime number
- c) event of getting a number less than or equal to 2 d) event of getting an odd number
- 5) When drawing a card from 10 identical cards numbered from 1 to 10 , which of the following is the event of drawing a number divisible by 2 ?
- a) {2,4,6,8} b) {2,6} c) {2,4,6,8,10} d) {2,4,6}

- 6) In the experiment of rolling a fair die once, and observing the number shown on the upper face, which of the following events is a certain event ?
- a) {2, 4, 6} b) {1} c) {1, 3, 5} d) {1, 2, 3, 4, 5, 6}
- 7) If you are thinking of purchasing one pen from a set of identical pens containing 5 red pens, 2 blue pens, and 3 black pens, and you select this pen randomly what is the probability that the pen is blue?
- a) $\frac{1}{4}$ b) $\frac{1}{5}$ c) $\frac{2}{15}$ d) $\frac{1}{15}$
- 8) In an experiment of rolling a fair die once, what is the probability of getting a number divisible by 2 ?
- a) zero b) $33\frac{1}{3}\%$ c) 50 % d) 70 %
- 9) If A is an event from a random experiment with equal chances of occurrence, and the probability of event A is 40%, the number of elements of the sample space is 15, what is the number of Elements of event A ?
- a) 2 b) 4 c) 6 d) 10
- 10) A ball is drawn randomly from a box containing 35 identical balls, of which 7 are white and the remainder are red and black, What is the probability that the drawn ball is not white ?

- a) $\frac{1}{6}$ b) $\frac{1}{5}$ c) $\frac{4}{5}$ d) $\frac{34}{35}$

11) A card carrying a letter from the word "NORHAN" is drawn randomly. What is the probability that this letter is (N)?

- a) $\frac{1}{6}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{2}{5}$

12) In an experiment of rolling a fair die once, what is the probability of appearing a number less than 5?

- a) $\frac{1}{6}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{2}$

13) Which of the following could be a probability of an event occurring?

- a) 1.2 b) -0.4 c) $\frac{2}{3}$ d) 213%

14) In an experiment of rolling a fair die and observing the upper face, the probability of rolling a number that is not equal to 2 is

- a) $\frac{1}{6}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{5}{6}$

15) If a fair coin is tossed 400 times, the closest number of times that heads is expected to appear from the following is

- a) 300 b) 90 c) 188 d) 270

Q2 Complete the following:-

- 1) In the experiment of tossing a fair coin twice in consecutive where the head is H and the tail is T, the sample space for this Experiment is {HH, HT, TH, TT}
- 2) In the experiment of rolling a fair die twice in consecutive and observing the number showing on the upper face, the number of Elements in the sample space is 36
- 3) In the experiment of forming a 2-digit number from the set of numbers {2, 3, 4} the number of elements in the sample space is 9
- 4) If the probability of an event occurring equals the probability of the same event not occurring, then the probability of that event $= \frac{1}{2} = 50\%$
- 5) The probability of an impossible event = 0
- 6) The probability of a certain event = 1

Q3 Answer the following:-

- 1) A card was drawn randomly from a set of identical cards numbered from 5 to 14 , find the probability that the drawn card carries:

$$S = \{5, 6, 7, 8, 9, 10, 11, 12, 13, 14\} \quad n(S) = 10$$

f) An odd number. $\frac{5}{10} = \frac{1}{2}$

g) An even number greater than 9. $\frac{3}{10}$

h) A prime number. $\frac{4}{10} = \frac{2}{5}$

i) A perfect square number. $\frac{1}{10}$

j) A number less than 5. zero

- 2) The opposite figure represents a spinning disc game.



- c) Calculate the probability that the pointer stops at the colour:

(a) Red. $\frac{1}{8}$

(b) Green. $\frac{3}{8}$

(c) Yellow. $\frac{4}{8} = \frac{1}{2}$

- d) Calculate the probability that the pointer does not stop at the colour red. $\frac{7}{8}$

End of 2nd MonthQ1 Choose the correct answer :-

1. Which of the following is equal to $(-2)^3$
a) 6 b) 8 c) -6 d) -8
2. If: $(x - 3)(x + 3) = x^2 - k$, What is the value of k ?
a) 3 b) 9 c) 0 d) 6
3. A rhombus has diagonals of length 6 cm and 10 cm. What is its area? square centimeters
a) 60 b) 120 c) 30 d) 16
4. If : $2.5 \times 10^n = 0.000025$, What is the value of n ?
a) -5 b) 4 c) -4 d) 5
5. If $\sqrt{25} = \sqrt[3]{a}$, what is the value of a ?
a) 5 b) 125 c) -5 d) 25
6. $(3x^2)(4x^3) = \dots\dots\dots$
a) $12x^6$ b) $12x^5$ c) $12x$ d) $7x^5$
7. A trapezium has parallel bases of lengths 8 cm and 12 cm and a height of 6 cm. Its area is cm^2
a) 120 b) 60 c) 84 d) 26
8. $\frac{5x^2+10x}{5x} = \dots\dots\dots$
a) $x^3 + 2x^2$ b) $3x^2$ c) $-x$ d) $x + 2$
10. If: $(2x + 3)^2 = ax^2 + bx + c$, What is the value of b ?
a) 12 b) 10 c) 9 d) 6

11. A trapezium has a middle base of 8 cm and a height of 5 cm. Its area = cm²

- a) 20 b) 40 c) 26 d) 80

12. $(x^2 + x) \div x = \dots\dots\dots$

- a) x b) x + 1 c) 0 d) 2x + 1

13. What inequality expresses that twice the number x is less than 5?

- a) $2x > 5$ b) $x + 2 < 5$ c) $x - 2 < 5$ d) $2x < 5$

14. A trapezium has parallel bases of lengths 6 cm and 10 cm and a height of 6 cm. Its area is cm²

- a) 120 b) 60 c) 48 d) 26

15. The image of point (1 , 5) by reflection in the x-axis followed by reflection in the y-axis is

- a) (1 , -5) b) (-1 , -5) c) (5 , 1) d) (-1 , 5)

16. If: $\frac{2x+a}{x+3} = 2$, then what is the value of a ?

- a) 2 b) 3 c) 5 d) 6

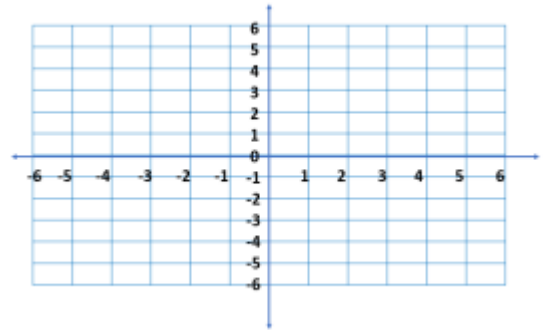
Q2 Answer the following :-

1. Simplify in the simplest form: $\frac{4^8 \times 4^{-5}}{4^2} = \dots\dots\dots$

2) Simplify in the simplest form: $\sqrt{\frac{81}{25}} \times \left(\frac{9}{7}\right)^0 + \sqrt[3]{\frac{125}{27}}$

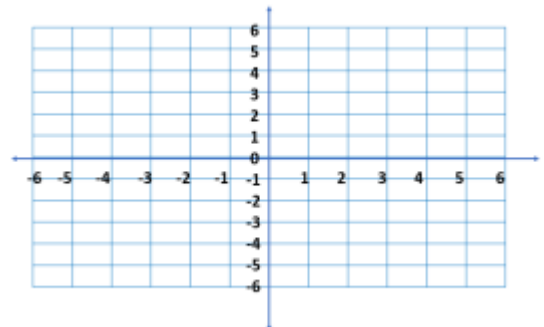
3) Find the solution set of the following inequality in Z: $3x - 1 \geq 11$

4) Draw the triangle ABC where A(1, 1), B(4, 1), C(1, 5), then draw its image by reflection in the x-axis.



5) Draw an angle measuring 60° and then bisect it using a ruler and compass.

6) Draw triangle ABC where: A (-1, 1), B (3, 1), C (3, 4), then draw its image by translation (1, -2).



7) A trapezium has parallel bases of lengths of 10 cm and 14 cm, and a height of 8 cm. What is its area in square centimeters?

8) Find by inspection: $(2x+1)(x+4)$.

9) Draw the equilateral triangle ABC with a side length of 6 cm, then bisect $\angle ABC$ using geometric tools.

10) Draw $\triangle ABC$ where $AB = 7$ cm, $BC = 5$ cm, and $m(\angle ABC) = 80^\circ$

11) Find the quotient of: $(9X^4 - 6X^3 + 12X^2)$ divided by $-3x$, where $x \neq 0$

12) In an experiment where a fair die is rolled once, find each of the following events:

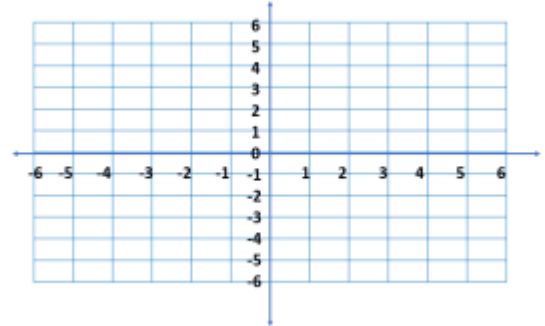
(1) A event: Obtaining an even number

(2) B event: Obtaining a number less than 3

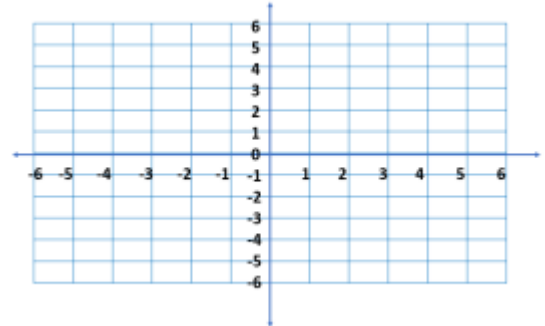
(3) C event: Obtaining a number greater than 6

13) Simplify in the simplest form: $(x + 2)^2 - (x + 4x)$

14) Draw triangle ABC where: A (-1 , 1), B (3, 1), C (3 , 4), then draw its image by translation $(x + 4 , y - 1)$.



15) Draw the square ABCD where: A (0 , 2), B (2, 2), C (2 , 4), D (0 , 4), then draw its image by rotating $R(O, 180^\circ)$



16) A bag contains a red ball, 6 blue balls, and 3 green balls, all identical. If a ball is randomly drawn from the bag and its color is observed, what is the probability that the drawn ball is:

- (1) Blue.
- (2) Not green.
- (3) Red or blue.

17) A trapezium has a height of 15 cm and the ratio of the lengths of its two bases is 4 : 3 , If the length of the longer base is 8 cm, find the surface area of the trapezium.

18) Find the solution set of the following equation in Z : $(x - 1)^3 + 2 = -6$

19) Simplify in the simplest form: $(2x - 1)(x^2 - 3x + 4)$

20) Find the quotient: $\frac{-15x^3y^3+25x^2y^5+10x^4y^6}{-5x^2y^3}$

21) Find the result in scientific notation: $(4.5 \times 10^3) (4 \times 10^2)$

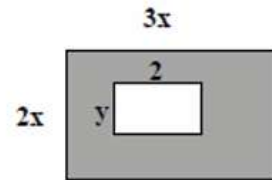
22) A trapezium has a height of 8 cm and a surface area equal to the surface area of a square with a diagonal of 12 cm. Find the length of the middle base of the trapezium.

23) Find the solution set of the following equation in Q : $27x^3 + 4 = 68$

24) Which has a greater area: a rhombus with diagonals of 6 cm and 8 cm, or a square with a diagonal of 8 cm?

25) Simplify in the simplest form: $x^2(x+2) + x^2(x^3-1)$ Then find the numerical value of the expression when $x = 2$

26) Find in the simplest form, the expression that represents the area of the shaded part in the figure opposite:



27) If the quotient of $(x^2 - 2x - 35)$ divided by $(x + 5)$ is $(x + b)$, then what is the value of b ?

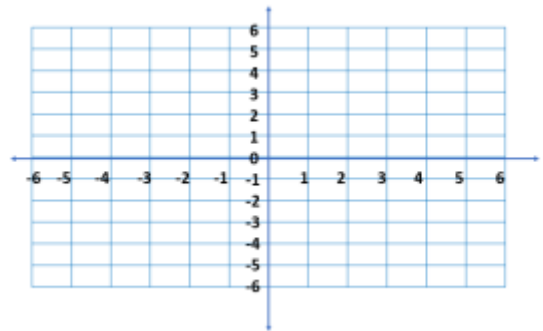
28) A square has a diagonal of $(x + 23)$ cm. Find its area in terms of x , then find the numerical value of the area when $x = 2$

29) Draw $\triangle ABC$ where $AB = 6$ cm, $BC = 4$ cm, and $AC = 5$ cm.

30) Which is greater in area: A square with a diagonal of 10 feet or a parallelogram with a base of 10 feet and a corresponding height of 4 feet?

31) Find the length of the diagonal of a square whose area is equal to the area of a rectangle whose length is 9 cm and width is 8 cm.

32) Draw the parallelogram whose vertices are : A(1 , 4) , B(3 , 3) , C(3, 0) , D(1 , 1), then draw its image by reflection in the x-axis.



33) A trapezium has an area of 88 square centimeters and a height of 11 centimeters. If the length of its shorter base is 6 centimeters, what is the length of its longer base?

34) Find the quotient of: $(x^4 - 1)$ divided by $(x^2 + 1)$

35) When a fair die is rolled once and the number shown on the upper face is observed, find the probability of each of the following events:

(1) A the event of obtaining an odd prime number.

(2) B the event of obtaining a perfect square number.



Answers

End of 2nd MonthQ1 Choose the correct answer :-1. Which of the following is equal to $(-2)^3$

- a) 6 b) 8 c) -6
- d) -8**

2. If: $(x - 3)(x + 3) = x^2 - k$, What is the value of k ?

- a) 3 b)
- 9**
- c) 0 d) 6

3. A rhombus has diagonals of length 6 cm and 10 cm. What is its area? square centimeters

- a) 60 b) 120 c)
- 30**
- d) 16

4. If : $2.5 \times 10^n = 0.000025$, What is the value of n ?

- a)
- 5**
- b) 4 c) -4 d) 5

5. If $\sqrt{25} = \sqrt[3]{a}$, what is the value of a ?

- a) 5 b)
- 125**
- c) -5 d) 25

6. $(3x^2)(4x^3) = \dots\dots\dots$

- a)
- $12x^6$
- b)
- $12x^5$**
- c)
- $12x$
- d)
- $7x^5$

7. A trapezium has parallel bases of lengths 8 cm and 12 cm and a height of 6 cm. Its area is cm^2

- a) 120 b)
- 60**
- c) 84 d) 26

8. $\frac{5x^2+10x}{5x} = \dots\dots\dots$

- a)
- $x^3 + 2x^2$
- b)
- $3x^2$
- c)
- $-x$
- d) $x + 2$**

10. If: $(2x + 3)^2 = ax^2 + bx + c$, What is the value of b ?

- a)
- 12**
- b) 10 c) 9 d) 6



11. A trapezium has a middle base of 8 cm and a height of 5 cm. Its area = cm²

- a) 20 b) 40 c) 26 d) 80

12. $(x^2 + x) \div x = \dots\dots\dots$

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14. A trapezium has parallel bases of lengths 6 cm and 10 cm and a height of 6 cm. Its area is cm²

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- a) (1 , -5) b) (-1 , -5) c) (5 , 1) d) (-1 , 5)

16. If: $\frac{2x+a}{x+3} = 2$, then what is the value of a ?

- a) 2 b) 3 c) 5 d) 6

Q2 Answer the following :-

1. Simplify in the simplest form: $\frac{4^8 \times 4^{-5}}{4^2} = 4$

2) Simplify in the simplest form: $\sqrt{\frac{81}{25}} \times \left(\frac{9}{7}\right)^0 + \sqrt[3]{\frac{125}{27}} = 3$

3) Find the solution set of the following inequality in Z: $3x - 1 \geq 11$

S.S = {4}

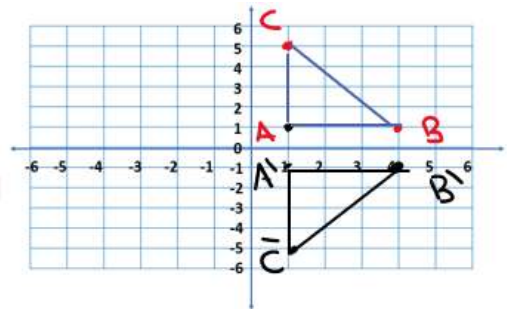
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4) Draw the triangle ABC where A(1, 1), B(4, 1), C(1, 5), then draw its image by reflection in the x-axis.

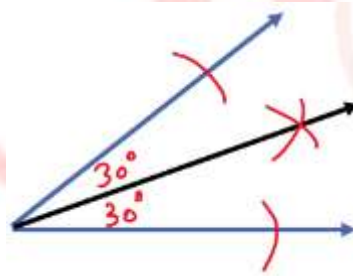
A'(1, -1)

B'(4, -1)

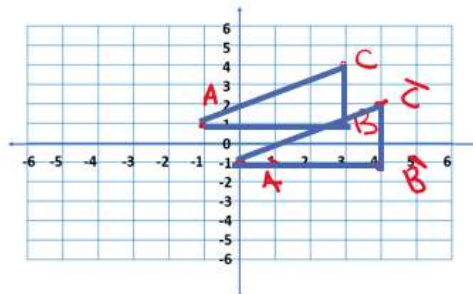
C'(1, -5)



5) Draw an angle measuring 60° and then bisect it using a ruler and compass.



6) Draw triangle ABC where: A (-1, 1), B (3, 1), C (3, 4), then draw its image by translation (1, -2).



7) A trapezium has parallel bases of lengths of 10 cm and 14 cm, and a height of 8 cm. What is its area in square centimeters?

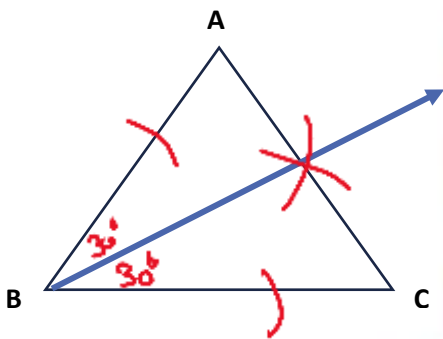
$$= 96 \text{ cm}^2$$

8) Find by inspection: $(2x+1)(x+4)$.

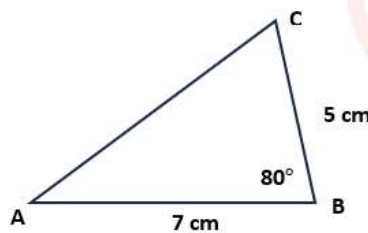
$$= 2x^2 + 9x + 4$$

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9) Draw the equilateral triangle ABC with a side length of 6 cm, then bisect $\angle ABC$ using geometric tools.



10) Draw $\triangle ABC$ where $AB = 7 \text{ cm}$, $BC = 5 \text{ cm}$, and $m(\angle ABC) = 80^\circ$



11) Find the quotient of: $(9X^4 - 6X^3 + 12X^2)$ divided by $-3x$, where $x \neq 0$

$$= -3x^3 + 2x^2 - 4x$$

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12) In an experiment where a fair die is rolled once, find each of the following events:

(1) A event: Obtaining an even number $\{2,4,6\}$

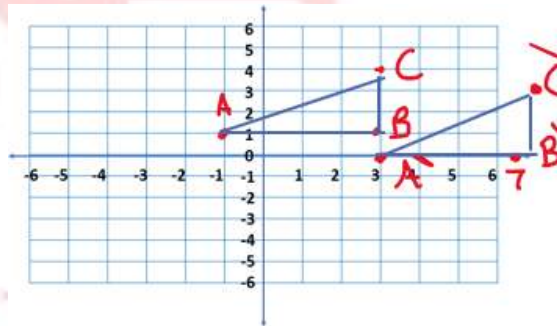
(2) B event: Obtaining a number less than 3 $\{1,2\}$

(3) C event: Obtaining a number greater than 6 $\emptyset$

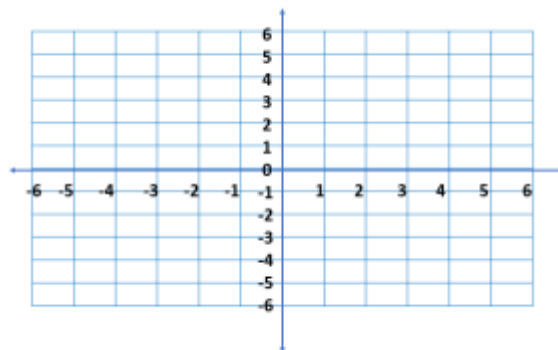
13) Simplify in the simplest form: $(x + 2)^2 - (x + 4x)$

$$= x^2 - x + 4$$

14) Draw triangle ABC where: A (-1 , 1), B (3 , 1), C (3 , 4), then draw its image by translation $(x + 4 , y - 1)$.



15) Draw the square ABCD where: A (0 , 2), B (2 , 2), C (2 , 4), D (0 , 4), then draw its image by rotating $R(O, 180^\circ)$



16) A bag contains a red ball, 6 blue balls, and 3 green balls, all identical. If a ball is randomly drawn from the bag and its color is observed, what is the probability that the drawn ball is:

(1) Blue. $\frac{3}{5}$

(2) Not green. $\frac{7}{10}$

(3) Red or blue. $\frac{7}{10}$

17) A trapezium has a height of 15 cm and the ratio of the lengths of its two bases is 4 : 3 , If the length of the longer base is 8 cm, find the surface area of the trapezium.

= 105 cm² for more steps watch the channel on you tube

18) Find the solution set of the following equation in Z : $(x - 1)^3 + 2 = -6$

S.S = $\{-7\}$

19) Simplify in the simplest form: $(2x - 1)(x^2 - 3x + 4)$

= $2x^3 - 7x^2 + 11x - 4$

20) Find the quotient: $\frac{-15x^3y^3+25x^2y^5+10x^4y^6}{-5x^2y^3}$

= $3x - 5y^2 - 2x^2y^3$

21) Find the result in scientific notation: $(4.5 \times 10^3)(4 \times 10^2)$

= 1.8×10^6

22) A trapezium has a height of 8 cm and a surface area equal to the surface area of a square with a diagonal of 12 cm. Find the length of the middle base of the trapezium.

= 9 cm for more steps watch the channel on you tube

23) Find the solution set of the following equation in Q : $27x^3 + 4 = 68$

$$S.S = \left\{\frac{4}{3}\right\}$$

for more steps watch the channel on you tube

24) Which has a greater area: a rhombus with diagonals of 6 cm and 8 cm, or a square with a diagonal of 8 cm?

$$\text{Rhombus} = 24\text{cm}^2$$

$$\text{Square} = 32\text{ cm}^2$$

Square is the greatest

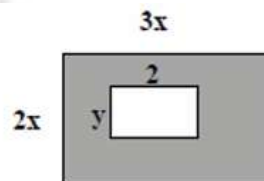
25) Simplify in the simplest form: $x^2(x+2) + x^2(x^3-1)$ Then find the numerical value of the expression when $x = 2$

$$x^5 + x^3 + x^2$$

$$\text{If } x = 2 \text{ then numerical value} = 44$$

26) Find in the simplest form, the expression that represents the area of the shaded part in the figure opposite:

$$6x^2 - 2y$$



27) If the quotient of $(x^2 - 2x - 35)$ divided by $(x + 5)$ is $(x + b)$, then what is the value of b ?

$$b = -7$$

28) A square has a diagonal of $(x + 23)$ cm. Find its area in terms of x , then find the numerical value of the area when $x = 2$

$$= \frac{(x+23)^2}{2} = \frac{(2+23)^2}{2} = 312.5\text{ cm}^2$$



29) Draw $\triangle ABC$ where $AB = 6$ cm, $BC = 4$ cm, and $AC = 5$ cm.

for more steps watch the channel on you tube

30) Which is greater in area: A square with a diagonal of 10 feet or a parallelogram with a base of 10 feet and a corresponding height of 4 feet?

Square = 50 cm^2

Parallelogram = 40 cm^2

Square is the greatest

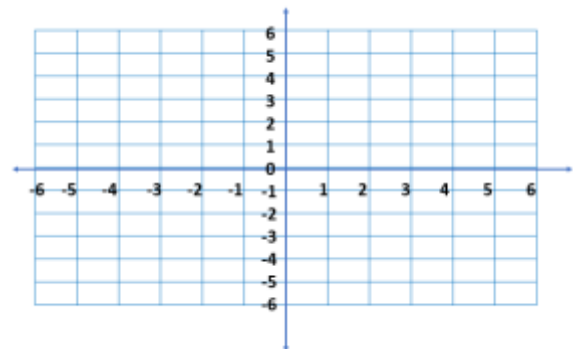
31) Find the length of the diagonal of a square whose area is equal to the area of a rectangle whose length is 9 cm and width is 8 cm.

Area of rectangle = 72 cm^2

Diagonal = 12 cm

for more steps watch the channel on you tube

32) Draw the parallelogram whose vertices are : $A(1, 4)$, $B(3, 3)$, $C(3, 0)$, $D(1, 1)$, then draw its image by reflection in the x-axis.



33) A trapezium has an area of 88 square centimeters and a height of 11 centimeters. If the length of its shorter base is 6 centimeters, what is the length of its longer base?

Base = 10cm

34) Find the quotient of: $(x^4 - 1)$ divided by $(x^2 + 1)$

= $x^2 - 1$

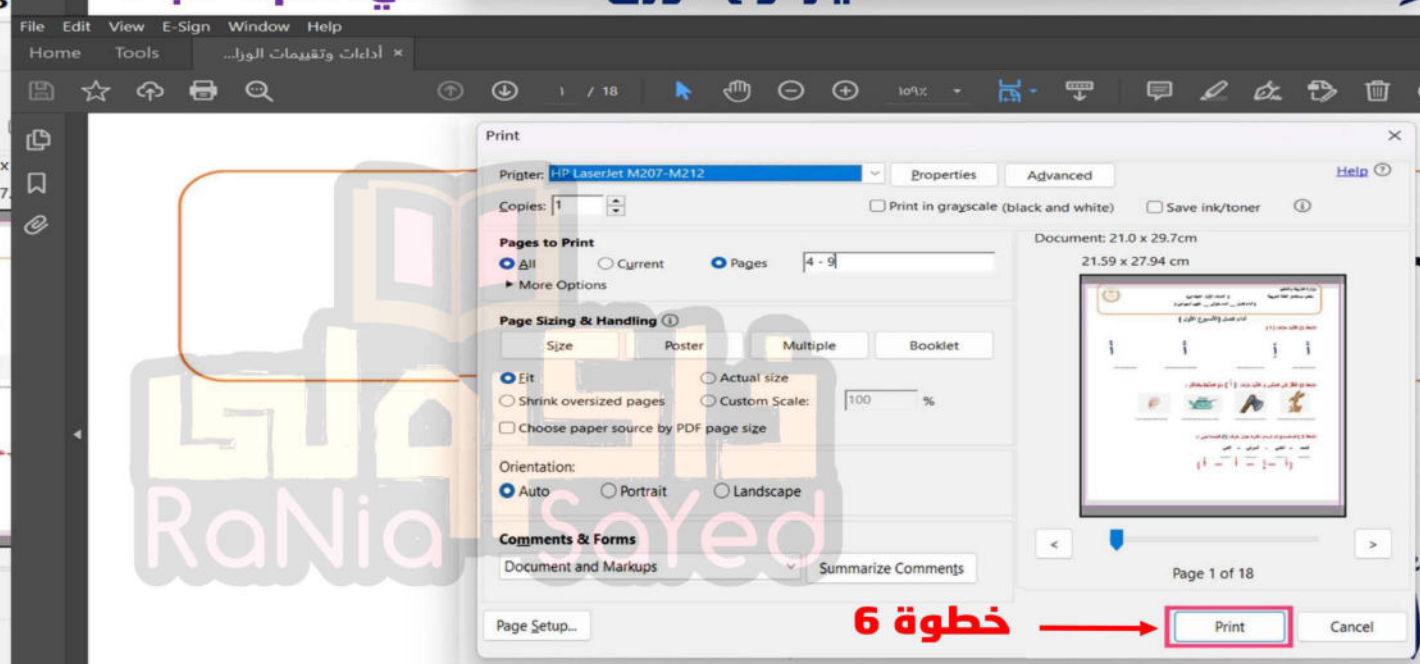
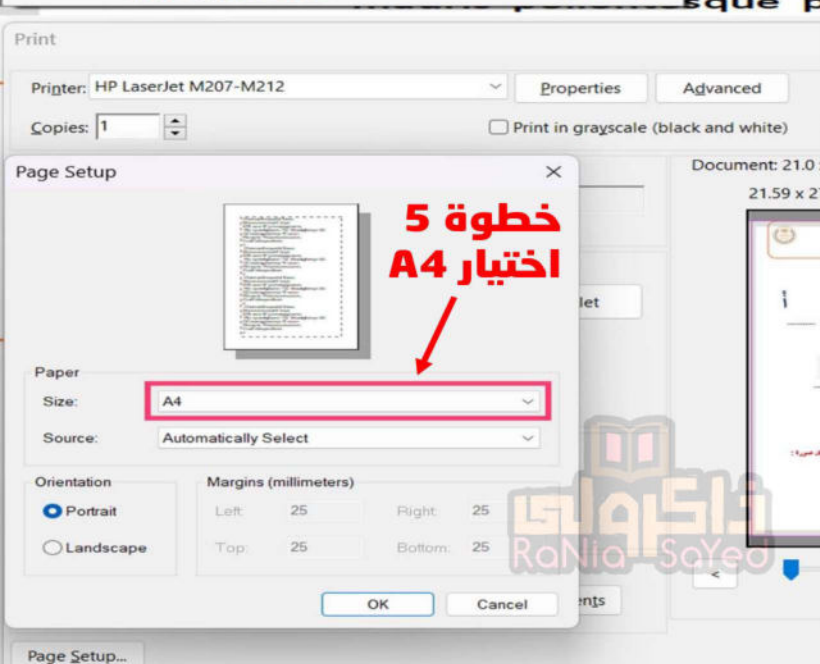
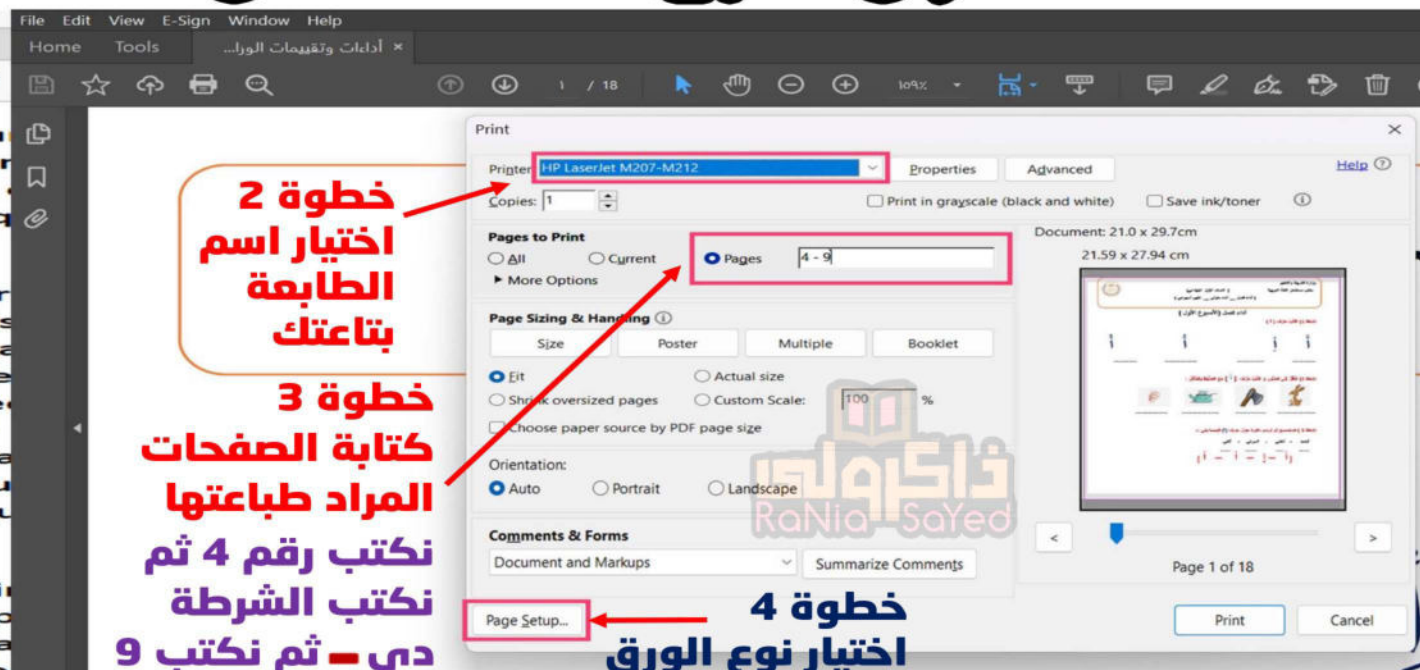
35) When a fair die is rolled once and the number shown on the upper face is observed, find the probability of each of the following events:

(1) A the event of obtaining an odd prime number. $\frac{1}{3}$

(2) B the event of obtaining a perfect square number. $\frac{1}{3}$

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

الترم الثاني



Q1: Choose the correct answer

- 1 The area of a rhombus is 90 cm^2 , and one diagonal is 9 cm.
What is the other diagonal?
 (a) 10 cm (b) 15 cm (c) 18 cm (d) 20 cm
- 2 $\sqrt[3]{(-8)^2} = \dots\dots\dots$
 (a) -4 (b) -2 (c) 2 (d) 4
- 3 $k(3m + 2) = 36m^2 + 24m$, then $k = \dots\dots\dots$
 (a) 12 m (b) 12 (c) 18 m (d) 6 m
- 4 If $0.0000503 = m \times 10^{-5}$, Then $m = \dots\dots\dots$
 (a) 503 (b) 5.03 (c) 50.3 (d) 0.503
- 5 The image of the point (4 , -3) by translation 3 units to the left is
 (a) (7 , -3) (b) (1 , -3) (c) (4 , -6) (d) (4 , 0)
- 6 The result of subtracting: $(a - b)^2$ from $(a + b)^2$ is
 (a) -4 ab (b) 4 ab (c) -2 ab (d) 2 ab
- 7 Which of the following could be a probability of an event?
 (a) -0.5 (b) 49% (c) $\frac{3}{2}$ (d) $1\frac{1}{3}$
- 8 What is the image of the point (-3 , 5) by reflection in the x-axis, followed by reflection in the y-axis?
 (a) (3 , -5) (b) (-3 , -5) (c) (-3 , 5) (d) (3 , 5)
- 9 The volume of a cuboid whose dimensions are $5x \text{ cm}$, $2x \text{ cm}$, and $2x \text{ cm}$, is cm^3 .
 (a) $9x$ (b) $20x^2$
 (c) $9x^3$ (d) $20x^3$



$$(x+y)^2 = (x-y)^2$$

$$a^{\frac{m}{n}} = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

10 If $x^2 = 10$, $y^2 = 7$, then $(x + y)(x - y) = \dots\dots\dots$

- (a) 70 (b) 17 (c) 3 (d) -3

11 The image of the point $(-1, -4)$ by reflection in the $\dots\dots\dots$ is $(1, -4)$

- (a) x-axis (b) y-axis (c) origin point (d) otherwise

12 If $0.000809 = m \times 10^{-4}$, Then $m = \dots\dots\dots$

- (a) 809 (b) 8.09 (c) 80.9 (d) 0.809

13 $(2x)^4 = \dots\dots\dots$

- (a) $2x^4$ (b) $16x$ (c) $16x^4$ (d) $16x^2$

14 The multiplicative inverse of the number $(-1)^{45}$ is $\dots\dots\dots$

- (a) $(-1)^{43}$ (b) $(-1)^{44}$ (c) $(1)^{43}$ (d) $(1)^{44}$

15 The coefficient of xy in $(2x + 3y)^2$ is $\dots\dots\dots$

- (a) 1 (b) 5 (c) 6 (d) 12

17 A square has a diagonal of 16 cm. What is the area of the square?

- (a) 128 cm^2 (b) 100 cm^2 (c) 144 cm^2 (d) 256 cm^2

18 The inequality which represents the maximum speed of a car is 80 km/hr is $\dots\dots\dots$

- (a) $x > 80$ (b) $x < 80$ (c) $x \geq 80$ (d) $x \leq 80$

19 What is the event of getting the same outcome on both tosses when tossing a fair coin twice?

- (a) {HH, HT} (b) {HH, TT} (c) {HT, TH} (d) {HT, TT}



20 The height of a trapezium is 6 cm. If the area is 90 cm^2 , and one base is 10 cm, then the second base equals

- (a) 15 cm (b) 20 cm (c) 10 cm (d) 12 cm

21 $\frac{a+b}{c} = \dots\dots\dots$

- (a) $\frac{a+b}{c}$ (b) $\frac{a}{b+c}$ (c) $\frac{a}{c} + \frac{b}{c}$ (d) $\frac{ab}{c}$

22 $(-\frac{3}{5})^{-3} = \dots\dots\dots$

- (a) $-\frac{27}{125}$ (b) $-\frac{125}{27}$ (c) $\frac{27}{125}$ (d) $\frac{125}{27}$

23 If $(x-y)(2x+y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$

- (a) 3 (b) 4 (c) -1 (d) 1

24 The image of the point $(-1, 5)$ after a 90° clockwise rotation is?

- (a) $(5, 1)$ (b) $(-5, 1)$ (c) $(1, -5)$ (d) $(-1, 5)$

25 3 belongs to the solution set of the inequality:, where $x \in \mathbb{Z}$

- (a) $x > 3$ (b) $-x < -3$ (c) $x < 3$ (d) $-x \geq -3$

26 The side length of a square whose area is 10 cm^2 is cm

- (a) 100 (b) $\sqrt{10}$ (c) 10 (d) $\sqrt{100}$

27 If the volume of a cuboid is $(x^2 + 14x + 49) \text{ cm}^3$, and its base area is $(x+7) \text{ cm}^2$, then the height = cm.

- (a) $x+6$ (b) $x+5$ (c) $x+7$ (d) $x+9$

28 The image of the point by translation $(2, 0)$ followed by translation $(0, 2)$ is $(4, 7)$.

- (a) $(6, 9)$ (b) $(2, 7)$ (c) $(4, 5)$ (d) $(2, 5)$



29 If $\frac{x}{-3} < 2$, then x - 6

- (a) $>$ (b) $<$ (c) $=$ (d) $\geq$

30 If $(4x - 5)^2 = ax^2 + bx + c$, what is the value of a ?

- (a) 20 (b) -20 (c) 16 (d) -10

31 If $3y$ is the side length of a square, then its area equals

- (a) $12y$ (b) $9y$ (c) $9y^2$ (d) $81y^2$

32 The number which is in scientific notation from the following is

- (a) 11×10^8 (b) 9.7×10^{-5} (c) 10.2×10^{-2} (d) 0.87×10^8

33 Which of the following points is the same point by reflection in the x -axis?

- (a) $(-3, 0)$ (b) $(0, -3)$ (c) $(1, -3)$ (d) $(-3, 1)$

34 $(\frac{a}{b})^5 \times \frac{b^5}{a^5} = \dots\dots\dots$ (where $a \neq \text{zero}$, $b \neq \text{zero}$)

- (a) $(\frac{a}{b})^{10}$ (b) $\frac{a}{b}$ (c) ab (d) $(xy)^{\text{zero}}$

35 A square has a side length of S and an Area A ,
What is the area of square whose diagonal is $2S$?

- (a) A (b) $2A$ (c) $4A$ (d) A^2

36 If a fair coin is flipped three times in a row, the probability of getting heads all three times is

- (a) $\frac{1}{6}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{1}{8}$

37 If the quotient of $(x^2 - 2x - 35)$ divided by $(x + 5)$ is $(x + b)$,
what is the value of b ?

- (a) -7 (b) 5 (c) -5 (d) 7



$$(x+y)^2 = (x-y)^2$$

$$a^m \div a^n = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

38 If $(6x^2y^3 + kxy) \div 6x = xy^3 - 12y$ where $(x \neq 0)$, then $|k| = \dots\dots\dots$

- (a) -72 (b) -2 (c) 2 (d) 72

39 If $(x - y)(2x + y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$

- (a) 3 (b) 4 (c) -1 (d) 1

40 $\frac{3^x}{3^{-y}} = \dots\dots\dots$

- (a) $-\frac{x}{y}$ (b) 3^{x+y} (c) 3^{x+y} (d) 3^{x-y}

41 In a single roll of a fair die, the probability of getting an even number is $\dots\dots\dots$

- (a) $\frac{1}{6}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{1}{3}$

42 The scientific notation of the number 750×10^{-6} is $\dots\dots\dots$

- (a) 7.5×10^{-8} (b) 7.5×10^{-7} (c) 7.5×10^{-4} (d) 7.5×10^4

43 What is the image of the point $(2, -3)$ after reflection in the x-axis followed by reflection in the y-axis?

- (a) $(2, 3)$ (b) $(-2, -3)$ (c) $(-2, 3)$ (d) $(2, -3)$

44 If $-x > 4$, then $\dots\dots\dots$

- (a) $x > 4$ (b) $x < 4$ (c) $x < -4$ (d) $x > -4$

45 What is the image of the point $(-3, 0)$ under rotation $R(O, 90)$ followed by rotation $R(O, -90)$?

- (a) $(3, 0)$ (b) $(0, 3)$ (c) $(0, -3)$ (d) $(-3, 0)$

46 Which of the following rotations makes $A'(x, -y)$ is the image of $A(-x, y)$?

- (a) $R(O, 90^\circ)$ (b) $R(O, -90^\circ)$
(c) $R(O, 360^\circ)$ (d) $R(O, 180^\circ)$



47 The image of the point (3, -1) by R (O, -180°) is

- (a) (-3, -1) (b) (3, -1) (c) (-3, 1) (d) (3, 1)

48 If the area of rectangle is $24x^3$ and its width is $4x$ then its length is

- (a) $6x$ (b) $8x^2$ (c) $6x^2$ (d) $96x^4$

49 What is the translation that makes point A' (-2, 1) the image of A (4, -5)?

- (a) (-6, 6) (b) (-6, -6) (c) (2, -4) (d) (6, -6)

50 $\sqrt{25 + 144} = 5 + \dots$

- (a) 12 (b) 13 (c) 8 (d) 6

51 If $x < 0 < y$, $|x| > y$, Then $x + y$ zero

- (a) $>$ (b) $<$ (c) $=$ (d) $\geq$

52 If (x - 3) is one factor of (x² + 4x - 21), then the other factor is

- (a) x + 7 (b) x - 5 (c) x + 5 (d) x + 3

53 A square whose diagonal length is 12 cm, its area = cm².

- (a) 72 (b) 48 (c) 144 (d) 24

54 What is the event of drawing a perfect cube number from a set of 25 cards numbered 1 to 25?

- (a) {1, 8, 27} (b) {1, 8} (c) {1, 8, 27, 64} (d) {1, 8, 64}

55 $0.0000073 = 7.3 \times \dots$

- (a) 10^{-6} (b) 10^{-5} (c) 10^5 (d) 10^6

56 If the point (k + 3, m - 6) is itself by reflection in the x-axis and y-axis, then k + m =

- (a) 3 (b) -4 (c) -1 (d) 7



$$(x+y)^2 - (x-y)^2$$

$$a^m \div a^n = a^{m-n}$$

$$c^2 = a^2 + b^2$$

57 The triangle whose base length is 12 cm. and its area is 48 cm², then the corresponding height is cm

- (a) 3 (b) 4 (c) 6 (d) 8

58 The total probability of all possible outcomes of a random experiment is

- (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{2}{3}$

59 The S.S of the equation: $x^2 + 9 = 0$ in Q is

- (a) {-9} (b) {-3 , 3} (c) {-3} (d) $\emptyset$

60 $\div 5m = 25 m^2n$

- (a) 125 m²n (b) 125 m³n (c) m³n (d) 25 m³n

61 The quotient of $x^2 + 3x - 40$ by $x + 8$ equals

- (a) $x + 13$ (b) $x + 5$ (c) $x - 5$ (d) $x - 13$

62 If $x - y = 4$ and $x + y = 10$, then $x(x - y) + y(x - y) = \dots\dots\dots$

- (a) 4 (b) 6 (c) 14 (d) 40

63 If $y^{22} + y^{23} = 0$, then $y = \dots\dots\dots$

- (a) -1 (b) 1 (c) 2 (d) -2

64 Which of the following is the smallest ?

- (a) 314×10^3 (b) 3.14×10^4 (c) 31.4×10^5 (d) 0.314×10^6

65 The image of the point (0 , - 4) by reflection in the is itself

- (a) x-axis (b) y-axis (c) origin point (d) otherwise

66 What inequality expresses that twice the number x is less than 5?

- (a) $2x > 5$ (b) $x + 2 < 5$ (c) $x - 2 < 5$ (d) $2x < 5$



67 What is the value of m that's make $x^2 + 5x - m$ divisible by $x - 2$?

- (a) 12 (b) 16 (c) 14 (d) 15

68 Quarter of $4^{20} = \dots\dots\dots$

- (a) 4^5 (b) 4^{19} (c) 2^{39} (d) 4^{10}

69 The image of the point by $R(O, -90^\circ)$ followed by $R(O, 90^\circ)$ is $(4, 7)$.

- (a) $(-4, -7)$ (b) $(7, 4)$ (c) $(-7, -4)$ (d) $(4, 7)$

70 If the volume of a cube is 64 cm^3 : then its edge length is cm.

- (a) 4 (b) 8 (c) 16 (d) 64

71 The probability of an event that is impossible is

- (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{1}{3}$

72 Which of the following is the greatest ?

- (a) 6.3×10^5 (b) 9.8×10^4 (c) 5.2×10^5 (d) 7.3×10^4

73 The area of the square whose diagonal length is 6 cm. equals cm^2 .

- (a) 12 (b) 18 (c) 24 (d) 36

74 The image of the point $(0, 8)$ by the translation $(3, -5)$ followed by reflection in the X-axis is

- (a) $(-3, -3)$ (b) $(-3, 3)$ (c) $(3, -3)$ (d) $(3, 3)$

75 $\sqrt[3]{-64} + \sqrt{16} = \dots\dots\dots$

- (a) zero (b) -8 (c) 8 (d) ± 8

76 If $x - y = 4$, and $x + y = 7$, then $x^2 - y^2 = \dots\dots\dots$

- (a) 4 (b) 7 (c) 3 (d) 28



77 The image of the point $(2, -3)$ by rotation about the origin with an angle of measure 180° is

- (a) $(-2, -3)$ (b) $(3, 2)$ (c) $(-2, 3)$ (d) $(2, 3)$

78 $\div (-2x^2y) = 12xy^2$

- (a) $6xy$ (b) $-6xy$ (c) $24x^3y^3$ (d) $-24x^3y^3$

79 The area of a square whose side length is $\sqrt{3}$ cm is cm^2

- (a) $4x\sqrt{3}$ (b) 9 (c) 3 (d) 6

80 If the area of a trapezium is 120 cm^2 , and its bases are 20 cm and 10 cm, Then the height = cm

- (a) 4 (b) 6 (c) 8 (d) 10

81 If $(x+5)(x-5) = x^2 + b$, then $b = \dots\dots\dots$

- (a) 25 (b) -25 (c) 10 (d) -10

82 If $x > 7$, then $-x \dots\dots\dots$

- (a) > -7 (b) ≥ -7 (c) ≤ -7 (d) < -7

83 In the experiment of tossing a fair coin twice, how many elements are in the sample space?

- (a) 2 (b) 4 (c) 8 (d) 16

84 A rectangle whose length is $3x^2$ cm, and its width is $5x$ cm, then its area is cm^2 .

- (a) $15x$ (b) $15x^2$ (c) $8x^3$ (d) $15x^3$

85 $6y(3y^2 - 4y + 2) = \dots\dots\dots$

- (a) $18y^3 + 24y^3 + 12y$ (b) $18y^3 - 4y + 2$
(c) $18y^2 - 24y + 2$ (d) $18y^3 - 24y^2 + 12y$



86 $(a^3 + a^2) \div a^2 = \dots\dots\dots$ where $a \neq 0$.

- ☐ a 0 ☐ b a ☐ c $a + 1$ ☐ d $2a + 1$

87 The solution set of the inequality: $-4x > 3$ in $\mathbb{Z}^+$ is $\dots\dots\dots$

- ☐ a $\{0, -1, -2, \dots\}$ ☐ b $\{0, 1, 2, 3, 4, \dots\}$ ☐ c $\{0\}$ ☐ d $\emptyset$

88 If $0.00043 = 4.3 \times 10^n$, Then $n = \dots\dots\dots$

- ☐ a -5 ☐ b -4 ☐ c 4 ☐ d 5

89 The identity rotation is a rotation with an angle of measure $\dots\dots\dots$

- ☐ a 90° ☐ b 180° ☐ c 270° ☐ d 360°

90 The perimeter of the rectangle whose dimensions are $8x$, $5x$ is $\dots\dots\dots$

- ☐ a $40x^2$ ☐ b $13x$ ☐ c $40x$ ☐ d $26x$

91 If the image of the point $(k - 4, 7)$ by reflection in y -axis is itself, then $k = \dots\dots\dots$

- ☐ a 7 ☐ b 11 ☐ c 3 ☐ d 4

92 The probability of a certain event is $\dots\dots\dots$

- ☐ a 0 ☐ b 1 ☐ c $\frac{1}{2}$ ☐ d $\frac{1}{3}$

93 If $x^2 = 16$, $y^2 = 9$ and $xy = 12$, then $(x - y)^2 = \dots\dots\dots$

- ☐ a 49 ☐ b 165 ☐ c -1 ☐ d 1

94 Drawing a card from a set of identical numbered cards where all cards have the same number without knowing the numbers written on the cards is $\dots\dots\dots$

- ☐ a A random experiment ☐ b An impossible event
☐ c Not a random experiment ☐ d A certain event



95 $(\frac{2}{3})^{-2} = \dots\dots\dots$

(a) $-\frac{9}{4}$

(b) $-\frac{4}{9}$

(c) $\frac{4}{9}$

(d) $\frac{9}{4}$

96 $\sqrt[3]{(-8)^2} = \dots\dots\dots$

(a) -4

(b) -2

(c) 2

(d) 4

97 If $(x + 3)(x - 3) = x^2 + k$, then $k = \dots\dots\dots$

(a) 6

(b) 9

(c) -6

(d) -9

98 When rolling a fair die 10 times consecutively, if the number 4 appears twice on the upper face of the die, what is the experimental probability of not appearing of the number 4?

(a) $\frac{1}{10}$

(b) $\frac{2}{10}$

(c) $\frac{5}{6}$

(d) $\frac{8}{10}$

99 A rectangle with an area is $(x^2 - 9x + 18) \text{ cm}^2$. And its length is $(x - 3) \text{ cm}$, then its width = $\dots\dots\dots \text{ cm}$.

(a) $x - 10$

(b) $x - 6$

(c) $x + 6$

(d) $x + 10$

100 If $\frac{2x + a}{x + 3} = 2$, then what is the value of a ?

(a) 2

(b) 3

(c) 5

(d) 6

101 $(a - 4)(a + 4) + 16 = \dots\dots\dots$

(a) 2

(b) a^2

(c) $2a$

(d) -16

102 If $X - y = 7$, $X^2 - y^2 = 35$, what is the value of $X + y$?

(a) 245

(b) 5

(c) 18

(d) 42



$$(x+y)^2 = (x-y)^2$$

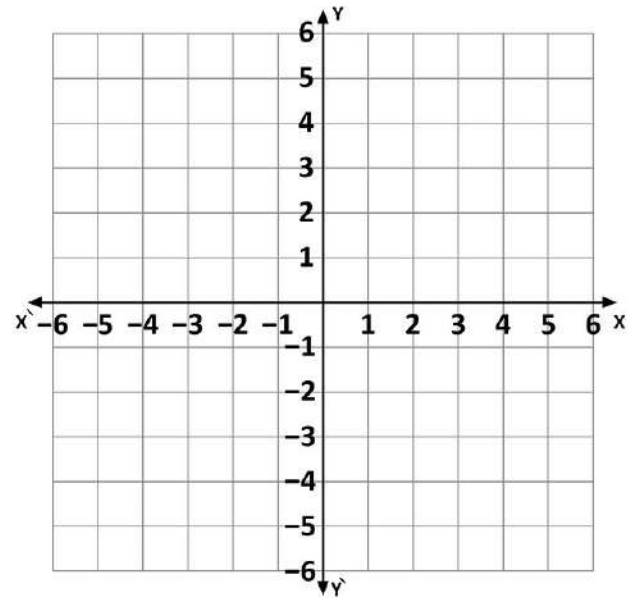
$$a^3/a^m = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

Q2: Answer The Following

- 1 Draw triangle ABC, A (2 , - 1), B (4 , 2), and C (3 , 5). Then draw the image of triangle ABC under rotation R (O , 90°) followed by rotation R (O , 180°).



- 2 Find the S.S for each of the following in Z:

a $2(x + 5) - 7 > 9$

a $2x^2 + 1 = 33$

- 3 A box contains 7 red balls, 8 green balls and 5 yellow balls. One ball is drawn randomly. Find the probability of getting :

a A green ball.

b A ball not yellow.

c A red ball.

d A blue ball.

- 4 Write in scientific notation : 0.0030305×10^{10}

- 5 Simplify the following to the simplest form: $(\frac{-1}{2})^2 \times \sqrt{\frac{81}{25}} \times \frac{4}{3}$



$$(x+y)^2 = (x-y)^2$$

$$a^m / a^n = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

6 Find the solution set of the following inequality in Z: $4 - 2x < -6$



7 If a card is randomly drawn from identical cards numbered from 10 to 19 and the number written on it is noted, find the probability of each of the following events:

- a A an odd number appeared.
- b B a prime number appeared.
- c C a number > 19 appeared.

8 If $(x - 4)$ is a factor of the expression $(x^2 - 5x + 4)$. Find the other factor



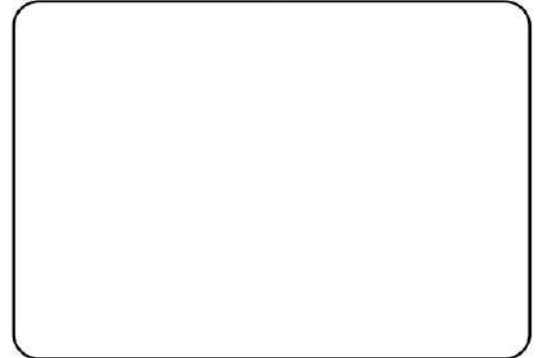
9 A rhombus has diagonal of lengths $(3x + 6)$ meters, and $(x + 1)$ meters. Find its area in terms of x , and then find the numerical value of the area when $x = 1$

10 The sum of probabilities of all possible outcomes of any random experiment =

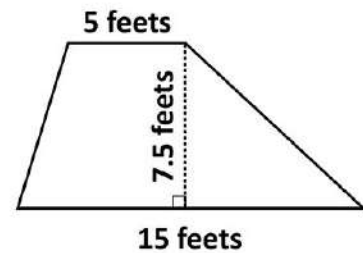
11 Find in the simplest form: $(a + b)^2 - (a + b)(a - b)$



- 12** Draw equilateral triangle ABC in which its side length is 5 cm.
Then verify its type according to its angles.



- 13** Find the area of the opposite trapezium:



- 14** A class has 40 student, a student has been chosen randomly, if the probability that the student not wearing a medical glasses is $\frac{5}{8}$, then the number of students who wearing a medical glasses = Students.

- 15** Calculate the value of the following in the scientific notation:
 $(3.6 \times 10^8) \times (1.8 \times 10^3)$

- 16** A player attempted to the goal 50 shoots, he scored 35 of them, find the experimental probability of:

- ☒ a) scoring the goal (G)
☐ b) not scoring the goal (F)

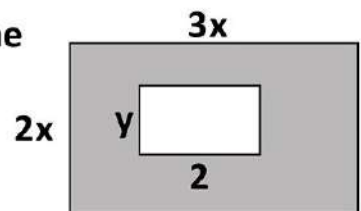
- 17** Divide $(-3x^2 + x^3 - x + 6)$ by $(x - 2)$, then find the numerical value of the quotient when $x = 2$



- 18** Simplify to the simplest form the expression: $2x(2x + 1) + 3x(x + 2)$,
then find the numerical value of the expression when $x = -1$

- 19** A trapezium with a middle base of 19 cm and a height of 5 cm. What is its area?

- 20** Find in the simplest form the expression which represents the shaded part of the opposite figure:



- 21** In the experiment of A fair coin is tossed 50 times, and the head appeared 32 times, then the experimental probability of appearing of tail

- 22** Put in the scientific notation : 0.000014×10^2

- 23** $28a^4b^2 \div \dots\dots\dots = 2a^3b^2$

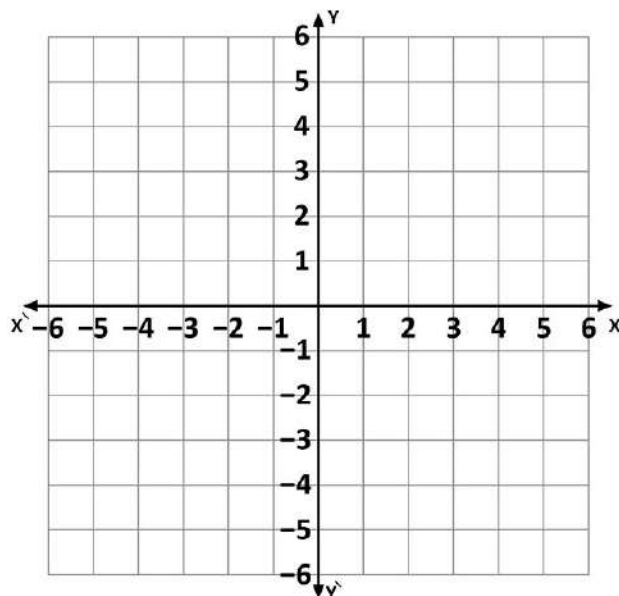
- 24** A trapezium has an area of 315 square centimeters, a height of 15 cm, and the ratio between the lengths of its bases is 3 : 4
What is the length of each base?



25 A fair coin is tossed 100 times, and the head appeared 41 times,
Find the experimental probability of appearing:

- ☐ a The head (H)
- ☐ b The tail (T)

26 Draw the triangle A B C where A (2 , - 2),
B (6 , - 2), and C (4 , 2).
Then find its image under the rotation 90°
anti-clockwise about the origin.



27 If the probability of occurrence of an event equals the probability of not its' occurrence, then the probability of this event =

28 If the expression $(x^3 - x^2 - 4x - m)$ is divisible by $(x - 3)$, Find the value of m

29 Write in the scientific notation: $(2.4 \times 10^5) - (4.2 \times 10^4)$

30 Find the S.S of $4(x + 3) > 7x - 9$ If the substitution set is Q



$$(x+y)^2 = (x-y)^2$$

$$a^3/a^m = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

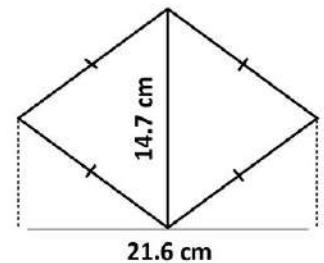
31 Find the solution set of the following inequality in Z: $x - 3(x - 5) \geq x + 7$

32 A card was drawn randomly from a set of identical cards numbered from 0 to 10. Find the probability that the drawn card carries:

- ☐ a A number that is a multiple of 5.
- ☐ b A number greater than 7

33 A rectangle with area is $(6x^3 + 7x^2 - 18x + 5) \text{ cm}^2$, and length $(3x^2 - 4x + 1) \text{ cm}$. Then find its width.

34 Find the area of the opposite figure:



35 Simplify the following to the simplest form: $1 \frac{1}{3} \times \sqrt{\frac{81}{16}} \times \left(-\frac{1}{2}\right)^0$

36 Find the expansion of: $(2x + 4)^2$



$$(x+y)^2 = (x-y)^2$$

$$a^m \div a^n = a^{m-n}$$

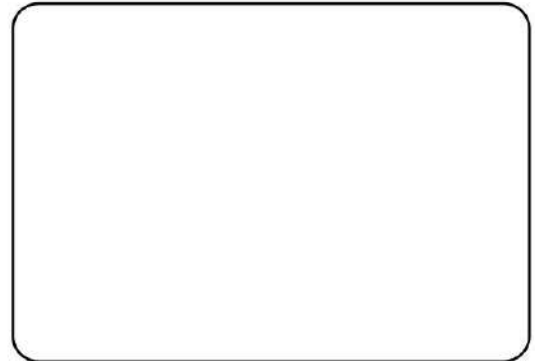
$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

37 Draw triangle XYZ where:

XY = 5 cm, YZ = 8 cm,

XZ = 7 cm, Determine its type according to the measures of its angles.



38 Find the quotient of: $(9x^4 - 6x^3 + 12x^2)$ divided by $-3x$, where $x \neq 0$

39 Calculate the value of the following in scientific notation:
 $(5.4 \times 10^4) + (3.7 \times 10^5)$

40 When a fair die is rolled once and the number shown on the upper face is observed, find the probability of each of the following events:

- a** A the event of obtaining an odd prime number.
- b** B the event of obtaining a perfect square number.

41 Find $\frac{36x^4y - 15xy^2}{18xy}$ in the simplest form

42 A square whose area is 0.36 cm^2 , Find its perimeter.



$$(x+y)^2 = (x-y)^2$$

$$a^m \div a^n = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

- 43** A trapezium has a height of 8 cm and a surface area equal to the surface area of a square with a diagonal of 12 cm.
Find the length of the middle base of the trapezium.



- 44** A cube has a volume of 512 cubic units. Find the length of its edge.

- 45** If a and b are the two square roots of c where $c \neq 0$, complete the following :

a $a + b = \dots\dots\dots$

b $\frac{a}{b} = \dots\dots\dots$

- 46** A trapezium has an area of 175 square meters, and the lengths of its two parallel bases are 14 meters and 21 meters. Find its height.



- 47** A bag contains 30 balls: 8 black, 12 white, and 10 red. If a ball is drawn at random, find the probability that the ball:

a is white.

b is not white.

c is either red or white



$$(x+y)^2 = (x-y)^2$$

$$a^m \div a^n = a^{m-n}$$

$$c^2 = a^2 + b^2$$

$$c^2 = a^2 + b^2$$

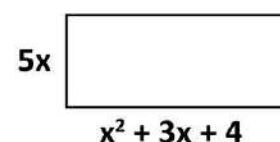
48 A card was drawn randomly from a set of identical cards numbered from 0 to 10. Find the probability that the drawn card carries:

- a A number that is a multiple of 5.
- b A number greater than 7

49 Reduce: $(x - 3)^2 - (x - 3)(x + 3)$

50 Find the length of the diagonal of a square whose area is equal to the area of a rhombus with diagonal lengths of 4 meters and 25 meters.

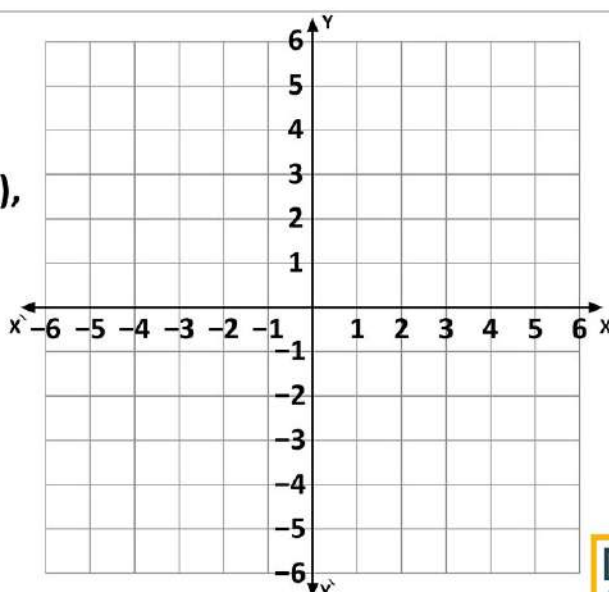
51 Find the area of the opposite rectangle in terms of x ,
Calculate the numerical value of the area when $x = 2$ cm



52 If $0 \leq P(A) \leq \dots\dots\dots$ where A is an event

53 Draw triangle D E F with vertices D (2 , 3),
E (5 , 3), and F (5 , 5).

Then find its image under the
rotation 180° about the origin



$$(x+y)^2 = (x-y)^2$$



$$c^2 = a^2 + b^2$$

$$a^m / a^n = a^{m-n}$$

$$c^2 = a^2 + b^2$$

54 Find the quotient of : $x^3 - 64$ by $x - 4$

55 Simplify: $(x - 3)(x + 4) + 9$, then find numerical value of the result when $x = 5$

56 Find the quotient of: $(9x^4 + 6x^3 + 12x^2)$ by $3x$

57 Simplify in the simplest form: $(x + 2)^2 - (x + 4x)$

58 Find the S.S of the following in Q:

a $(x - 1)^3 = 216$

b $3x^2 + 75 = 0$

59 Simplify: $\frac{x^3 \times x^{-2}}{x^{-5} \times x}$, Then find the numerical value of the result when: $x = -2$

60 $(x + 7)(x - 7) = x^2 + \dots\dots\dots$



Q1: Choose the correct answer

1 The area of a rhombus is 90 cm^2 , and one diagonal is 9 cm .
What is the other diagonal?

- ☐ a 10 cm ☐ b 15 cm ☐ c 18 cm ☒ d 20 cm

2 $\sqrt[3]{(-8)^2} = \dots\dots\dots$

- ☐ a -4 ☐ b -2 ☐ c 2 ☒ d 4

3 $k(3m + 2) = 36m^2 + 24m$, then $k = \dots\dots\dots$

- ☒ a 12 m ☐ b 12 ☐ c 18 m ☐ d 6 m

4 If $0.0000503 = m \times 10^{-5}$, Then $m = \dots\dots\dots$

- ☐ a 503 ☒ b 5.03 ☐ c 50.3 ☐ d 0.503

5 The image of the point $(4, -3)$ by translation 3 units to the left is $\dots\dots\dots$

- ☐ a $(7, -3)$ ☒ b $(1, -3)$ ☐ c $(4, -6)$ ☐ d $(4, 0)$

6 The result of subtracting: $(a - b)^2$ from $(a + b)^2$ is $\dots\dots\dots$

- ☐ a $-4ab$ ☒ b $4ab$ ☐ c $-2ab$ ☐ d $2ab$

7 Which of the following could be a probability of an event?

- ☐ a -0.5 ☒ b 49% ☐ c $\frac{3}{2}$ ☐ d $1\frac{1}{3}$

8 What is the image of the point $(-3, 5)$ by reflection in the x-axis, followed by reflection in the y-axis?

- ☒ a $(3, -5)$ ☐ b $(-3, -5)$ ☐ c $(-3, 5)$ ☐ d $(3, 5)$

9 The volume of a cuboid whose dimensions are $5x \text{ cm}$, $2x \text{ cm}$, and $2x \text{ cm}$, is $\dots\dots\dots \text{ cm}^3$.

- ☐ a $9x$ ☐ b $20x^2$
☐ c $9x^3$ ☒ d $20x^3$



10 If $x^2 = 10$, $y^2 = 7$, then $(x + y)(x - y) = \dots\dots\dots$

(a) 70

(b) 17

(c) 3

(d) -3

11 The image of the point $(-1, -4)$ by reflection in the $\dots\dots\dots$ is $(1, -4)$

(a) x-axis

(b) y-axis

(c) origin point

(d) otherwise

12 If $0.000809 = m \times 10^{-4}$, Then $m = \dots\dots\dots$

(a) 809

(b) 8.09

(c) 80.9

(d) 0.809

13 $(2x)^4 = \dots\dots\dots$

(a) $2x^4$

(b) $16x$

(c) $16x^4$

(d) $16x^2$

14 The multiplicative inverse of the number $(-1)^{45}$ is $\dots\dots\dots$

(a) $(-1)^{43}$

(b) $(-1)^{44}$

(c) $(1)^{43}$

(d) $(1)^{44}$

15 The coefficient of xy in $(2x + 3y)^2$ is $\dots\dots\dots$

(a) 1

(b) 5

(c) 6

(d) 12

17 A square has a diagonal of 16 cm. What is the area of the square?

(a) 128 cm^2

(b) 100 cm^2

(c) 144 cm^2

(d) 256 cm^2

18 The inequality which represents the maximum speed of a car is 80 km/hr is $\dots\dots\dots$

(a) $x > 80$

(b) $x < 80$

(c) $x \geq 80$

(d) $x \leq 80$

19 What is the event of getting the same outcome on both tosses when tossing a fair coin twice?

(a) {HH, HT}

(b) {HH, TT}

(c) {HT, TH}

(d) {HT, TT}



20 The height of a trapezium is 6 cm. If the area is 90 cm^2 , and one base is 10 cm, then the second base equals

- ☐ a 15 cm ☒ b 20 cm ☐ c 10 cm ☐ d 12 cm

21 $\frac{a+b}{c} = \dots\dots\dots$

- ☐ a $\frac{a+b}{c}$ ☒ b $\frac{a}{b+c}$ ☐ c $\frac{a}{c} + \frac{b}{c}$ ☐ d $\frac{ab}{c}$

22 $(-\frac{3}{5})^{-3} = \dots\dots\dots$

- ☐ a $\frac{-27}{125}$ ☒ b $\frac{-125}{27}$ ☐ c $\frac{27}{125}$ ☐ d $\frac{125}{27}$

23 If $(x-y)(2x+y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$

- ☐ a 3 ☐ b 4 ☒ c -1 ☐ d 1

24 The image of the point $(-1, 5)$ after a 90° clockwise rotation is?

- ☒ a $(5, 1)$ ☐ b $(-5, 1)$ ☐ c $(1, -5)$ ☐ d $(-1, 5)$

25 3 belongs to the solution set of the inequality:, where $x \in \mathbb{Z}$

- ☐ a $x > 3$ ☐ b $-x < -3$ ☐ c $x < 3$ ☒ d $-x \geq -3$

26 The side length of a square whose area is 10 cm^2 is cm

- ☐ a 100 ☒ b $\sqrt{10}$ ☐ c 10 ☐ d $\sqrt{100}$

27 If the volume of a cuboid is $(x^2 + 14x + 49) \text{ cm}^3$, and its base area is $(x+7) \text{ cm}^2$, then the height = cm.

- ☐ a $x+6$ ☐ b $x+5$ ☒ c $x+7$ ☐ d $x+9$

28 The image of the point by translation $(2, 0)$ followed by translation $(0, 2)$ is $(4, 7)$.

- ☐ a $(6, 9)$ ☐ b $(2, 7)$ ☐ c $(4, 5)$ ☒ d $(2, 5)$



29 If $\frac{x}{-3} < 2$, then x - 6

☒ a >

☐ b <

☐ c =

☐ d $\geq$

30 If $(4x - 5)^2 = ax^2 + bx + c$, what is the value of a?

☐ a 20

☐ b -20

☒ c 16

☐ d -10

31 If 3y is the side length of a square, then its area equals

☐ a 12 y

☐ b 9 y

☒ c $9y^2$

☐ d $81y^2$

32 The number which is in scientific notation from the following is

☐ a 11×10^8

☒ b 9.7×10^{-5}

☐ c 10.2×10^{-2}

☐ d 0.87×10^8

33 Which of the following points is the same point by reflection in the x-axis?

☒ a (-3, 0)

☐ b (0, -3)

☐ c (1, -3)

☐ d (-3, 1)

34 $(\frac{a}{b})^5 \times \frac{b^5}{a^5} = \dots\dots\dots$ (where a $\neq$ zero , b $\neq$ zero)

☐ a $(\frac{a}{b})^{10}$

☐ b $\frac{a}{b}$

☐ c ab

☒ d $(xy)^{\text{zero}}$

35 A square has a side length of S and an Area A,
What is the area of square whose diagonal is 2 S?

☐ a A

☒ b 2A

☐ c 4A

☐ d A^2

36 If a fair coin is flipped three times in a row, the probability of getting heads all three times is

☐ a $\frac{1}{6}$

☐ b $\frac{1}{4}$

☐ c $\frac{1}{2}$

☒ d $\frac{1}{8}$

37 If the quotient of $(x^2 - 2x - 35)$ divided by $(x + 5)$ is $(x + b)$,
what is the value of b?

☒ a -7

☐ b 5

☐ c -5

☐ d 7



38 If $(6x^2y^3 + kxy) \div 6x = xy^3 - 12y$ where $(x \neq 0)$, then $|k| = \dots\dots\dots$

(a) -72

(b) -2

(c) 2

(d) 72

39 If $(x - y)(2x + y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$

(a) 3

(b) 4

(c) -1

(d) 1

40 $\frac{3^x}{3^{-y}} = \dots\dots\dots$

(a) $-\frac{x}{y}$

(b) 3^{x+y}

(c) 3^{x+y}

(d) 3^{x-y}

41 In a single roll of a fair die, the probability of getting an even number is $\dots\dots\dots$

(a) $\frac{1}{6}$

(b) $\frac{1}{4}$

(c) $\frac{1}{2}$

(d) $\frac{1}{3}$

42 The scientific notation of the number 750×10^{-6} is $\dots\dots\dots$

(a) 7.5×10^{-8}

(b) 7.5×10^{-7}

(c) 7.5×10^{-4}

(d) 7.5×10^4

43 What is the image of the point $(2, -3)$ after reflection in the x-axis followed by reflection in the y-axis?

(a) $(2, 3)$

(b) $(-2, -3)$

(c) $(-2, 3)$

(d) $(2, -3)$

44 If $-x > 4$, then $\dots\dots\dots$

(a) $x > 4$

(b) $x < 4$

(c) $x < -4$

(d) $x > -4$

45 What is the image of the point $(-3, 0)$ under rotation $R(O, 90)$ followed by rotation $R(O, -90)$?

(a) $(3, 0)$

(b) $(0, 3)$

(c) $(0, -3)$

(d) $(-3, 0)$

46 Which of the following rotations makes $A'(x, -y)$ is the image of $A(-x, y)$?

(a) $R(O, 90^\circ)$

(b) $R(O, -90^\circ)$

(c) $R(O, 360^\circ)$

(d) $R(O, 180^\circ)$



47 The image of the point (3, -1) by R (O, -180°) is

- (a) (-3, -1) (b) (3, -1) (c) (-3, 1) (d) (3, 1)

48 If the area of rectangle is $24x^3$ and its width is $4x$ then its length is

- (a) $6x$ (b) $8x^2$ (c) $6x^2$ (d) $96x^4$

49 What is the translation that makes point A' (-2, 1) the image of A (4, -5)?

- (a) (-6, 6) (b) (-6, -6) (c) (2, -4) (d) (6, -6)

50 $\sqrt{25 + 144} = 5 + \dots$

- (a) 12 (b) 13 (c) 8 (d) 6

51 If $x < 0 < y$, $|x| > y$, Then $x + y$ zero

- (a) $>$ (b) $<$ (c) $=$ (d) $\geq$

52 If $(x - 3)$ is one factor of $(x^2 + 4x - 21)$, then the other factor is

- (a) $x + 7$ (b) $x - 5$ (c) $x + 5$ (d) $x + 3$

53 A square whose diagonal length is 12 cm, its area = cm^2 .

- (a) 72 (b) 48 (c) 144 (d) 24

54 What is the event of drawing a perfect cube number from a set of 25 cards numbered 1 to 25?

- (a) {1, 8, 27} (b) {1, 8} (c) {1, 8, 27, 64} (d) {1, 8, 64}

55 $0.0000073 = 7.3 \times \dots$

- (a) 10^{-6} (b) 10^{-5} (c) 10^5 (d) 10^6

56 If the point $(k + 3, m - 6)$ is itself by reflection in the x-axis and y-axis, then $k + m = \dots$

- (a) 3 (b) -4 (c) -1 (d) 7



- 57 The triangle whose base length is 12 cm. and its area is 48 cm^2 , then the corresponding height is cm
 (a) 3 (b) 4 (c) 6 (d) 8
- 58 The total probability of all possible outcomes of a random experiment is
 (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{2}{3}$
- 59 The S.S of the equation: $x^2 + 9 = 0$ in Q is
 (a) $\{-9\}$ (b) $\{-3, 3\}$ (c) $\{-3\}$ (d) $\emptyset$
- 60 $\div 5m = 25 m^2 n$
 (a) $125 m^2 n$ (b) $125 m^3 n$ (c) $m^3 n$ (d) $25 m^3 n$
- 61 The quotient of $x^2 + 3x - 40$ by $x + 8$ equals
 (a) $x + 13$ (b) $x + 5$ (c) $x - 5$ (d) $x - 13$
- 62 If $x - y = 4$ and $x + y = 10$, then $x(x - y) + y(x - y) =$
 (a) 4 (b) 6 (c) 14 (d) 40
- 63 If $y^{22} + y^{23} = 0$, then $y =$
 (a) -1 (b) 1 (c) 2 (d) -2
- 64 Which of the following is the smallest ?
 (a) 314×10^3 (b) 3.14×10^4 (c) 31.4×10^5 (d) 0.314×10^6
- 65 The image of the point $(0, -4)$ by reflection in the is itself
 (a) x-axis (b) y-axis (c) origin point (d) otherwise
- 66 What inequality expresses that twice the number x is less than 5?
 (a) $2x > 5$ (b) $x + 2 < 5$ (c) $x - 2 < 5$ (d) $2x < 5$



67 What is the value of m that's make $x^2 + 5x - m$ divisible by $x - 2$?

(a) 12

(b) 16

(c) 14

(d) 15

68 Quarter of $4^{20} = \dots\dots\dots$

(a) 4^5

(b) 4^{19}

(c) 2^{39}

(d) 4^{10}

69 The image of the point by $R(O, -90^\circ)$ followed by $R(O, 90^\circ)$ is $(4, 7)$.

(a) $(-4, -7)$

(b) $(7, 4)$

(c) $(-7, -4)$

(d) $(4, 7)$

70 If the volume of a cube is 64 cm^3 : then its edge length is cm.

(a) 4

(b) 8

(c) 16

(d) 64

71 The probability of an event that is impossible is

(a) 0

(b) 1

(c) $\frac{1}{2}$

(d) $\frac{1}{3}$

72 Which of the following is the greatest ?

(a) 6.3×10^5

(b) 9.8×10^4

(c) 5.2×10^5

(d) 7.3×10^4

73 The area of the square whose diagonal length is 6 cm. equals cm^2 .

(a) 12

(b) 18

(c) 24

(d) 36

74 The image of the point $(0, 8)$ by the translation $(3, -5)$ followed by reflection in the X-axis is

(a) $(-3, -3)$

(b) $(-3, 3)$

(c) $(3, -3)$

(d) $(3, 3)$

75 $\sqrt[3]{-64} + \sqrt{16} = \dots\dots\dots$

(a) zero

(b) -8

(c) 8

(d) ± 8

76 If $x - y = 4$, and $x + y = 7$, then $x^2 - y^2 = \dots\dots\dots$

(a) 4

(b) 7

(c) 3

(d) 28



77 The image of the point $(2, -3)$ by rotation about the origin with an angle of measure 180° is

- (a) $(-2, -3)$ (b) $(3, 2)$ (c) $(-2, 3)$ (d) $(2, 3)$

78 $\div (-2x^2y) = 12xy^2$

- (a) $6xy$ (b) $-6xy$ (c) $24x^3y^3$ (d) $-24x^3y^3$

79 The area of a square whose side length is $\sqrt{3}$ cm is cm^2

- (a) $4x\sqrt{3}$ (b) 9 (c) 3 (d) 6

80 If the area of a trapezium is 120 cm^2 , and its bases are 20 cm and 10 cm, Then the height = cm

- (a) 4 (b) 6 (c) 8 (d) 10

81 If $(x+5)(x-5) = x^2 + b$, then $b = \dots\dots\dots$

- (a) 25 (b) -25 (c) 10 (d) -10

82 If $x > 7$, then $-x \dots\dots\dots$

- (a) > -7 (b) ≥ -7 (c) ≤ -7 (d) < -7

83 In the experiment of tossing a fair coin twice, how many elements are in the sample space?

- (a) 2 (b) 4 (c) 8 (d) 16

84 A rectangle whose length is $3x^2$ cm, and its width is $5x$ cm, then its area is cm^2 .

- (a) $15x$ (b) $15x^2$ (c) $8x^3$ (d) $15x^3$

85 $6y(3y^2 - 4y + 2) = \dots\dots\dots$

- (a) $18y^3 + 24y^3 + 12y$ (b) $18y^3 - 4y + 2$
(c) $18y^2 - 24y + 2$ (d) $18y^3 - 24y^2 + 12y$



86) $(a^3 + a^2) \div a^2 = \dots\dots\dots$ where $a \neq 0$.

- ☐ a) 0 ☐ b) a ☒ c) a + 1 ☐ d) 2a + 1

87) The solution set of the inequality: $-4x > 3$ in $\mathbb{Z}^+$ is $\dots\dots\dots$

- ☐ a) $\{0, -1, -2, \dots\}$ ☐ b) $\{0, 1, 2, 3, 4, \dots\}$ ☐ c) $\{0\}$ ☒ d) $\emptyset$

88) If $0.00043 = 4.3 \times 10^n$, Then $n = \dots\dots\dots$

- ☐ a) -5 ☒ b) -4 ☐ c) 4 ☐ d) 5

89) The identity rotation is a rotation with an angle of measure $\dots\dots\dots$

- ☐ a) 90° ☐ b) 180° ☐ c) 270° ☒ d) 360°

90) The perimeter of the rectangle whose dimensions are $8x$, $5x$ is $\dots\dots\dots$

- ☐ a) $40x^2$ ☐ b) $13x$ ☐ c) $40x$ ☒ d) $26x$

91) If the image of the point $(k - 4, 7)$ by reflection in y-axis is itself, then $k = \dots\dots\dots$

- ☐ a) 7 ☐ b) 11 ☐ c) 3 ☒ d) 4

92) The probability of a certain event is $\dots\dots\dots$

- ☐ a) 0 ☒ b) 1 ☐ c) $\frac{1}{2}$ ☐ d) $\frac{1}{3}$

93) If $x^2 = 16$, $y^2 = 9$ and $xy = 12$, then $(x - y)^2 = \dots\dots\dots$

- ☐ a) 49 ☐ b) 165 ☐ c) -1 ☒ d) 1

94) Drawing a card from a set of identical numbered cards where all cards have the same number without knowing the numbers written on the cards is $\dots\dots\dots$

- ☐ a) A random experiment ☐ b) An impossible event
☒ c) Not a random experiment ☐ d) A certain event



95 $\left(\frac{2}{3}\right)^{-2} = \dots\dots\dots$

(a) $-\frac{9}{4}$

(b) $-\frac{4}{9}$

(c) $\frac{4}{9}$

(d) $\frac{9}{4}$

96 $\sqrt[3]{(-8)^2} = \dots\dots\dots$

(a) -4

(b) -2

(c) 2

(d) 4

97 If $(x+3)(x-3) = x^2 + k$, then $k = \dots\dots\dots$

(a) 6

(b) 9

(c) -6

(d) -9

98 When rolling a fair die 10 times consecutively, if the number 4 appears twice on the upper face of the die, what is the experimental probability of not appearing of the number 4?

(a) $\frac{1}{10}$

(b) $\frac{2}{10}$

(c) $\frac{5}{6}$

(d) $\frac{8}{10}$

99 A rectangle with an area is $(x^2 - 9x + 18) \text{ cm}^2$. And its length is $(x - 3) \text{ cm}$, then its width = $\dots\dots\dots \text{ cm}$.

(a) $x - 10$

(b) $x - 6$

(c) $x + 6$

(d) $x + 10$

100 If $\frac{2x+a}{x+3} = 2$, then what is the value of a ?

(a) 2

(b) 3

(c) 5

(d) 6

101 $(a-4)(a+4) + 16 = \dots\dots\dots$

(a) 2

(b) a^2

(c) $2a$

(d) -16

102 If $X - y = 7$, $X^2 - y^2 = 35$, what is the value of $X + y$?

(a) 245

(b) 5

(c) 18

(d) 42



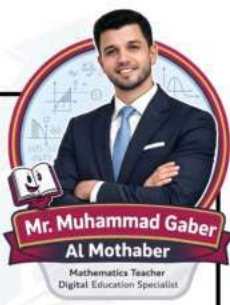
حمل الآن

مجاناً وحصرياً

المراجعة رقم (3)

الترم الثاني





Question 1

Choose the correct answer

1 $4^a + 4^a + 4^a + 4^a = \dots\dots\dots$

(a) 4^{4a}

(b) 16^{4a}

(c) 4^{a+1}

(d) 4^{a+4}

2 Which of the following is the greatest?

(a) 7.2×10^{-3}

(b) 7.2×10^{-5}

(c) -6.4×10^{-2}

(d) 4.6×10^{-7}

3 $\sqrt[3]{x^{12}} = \sqrt{\dots\dots\dots}$

(a) X^4

(b) X^9

(c) X^8

(d) X^{15}

4 Half of the number 2^{10} is $\dots\dots\dots$

(a) 2^5

(b) 1^5

(c) 2^8

(d) 2^9

5 $0.000016 = \dots\dots\dots$

(a) 1.6×10^4

(b) 1.6×10^5

(c) 1.6×10^{-5}

(d) 16×10^{-5}

6 If $X^3 = -1$, then $X = \dots\dots\dots$

(a) -1

(b) 1

(c) 0

(d) -3

7 $7x^0 + (2x^0) = \dots\dots\dots$

(a) 7

(b) 8

(c) $7x^2$

(d) 9

8 If a cube with an edge length of $3x$, then its volume = $\dots\dots\dots$

(a) $6x^2$

(b) $9x^2$

(c) $27x^3$

(d) $9x$

9 $\sqrt{36} + \sqrt{16} = \sqrt{\dots\dots\dots}$

(a) 10

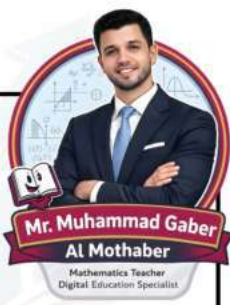
(b) 52

(c) 100

(d) 120



Follow me



10 $(3a^4b)(5a^2b^2)(2a^3) = \dots\dots\dots$

(a) $60a^{11}b^3$

(b) $30a^{10}b^2$

(c) $15a^{10}b^3$

(d) $30a^9b^3$

11 If $X + y = 15$, $X - y = 5$, then the value of $X^2 - y^2$ is

(a) 75

(b) 20

(c) 60

(d) 3

12 $\frac{a+b}{c} = \dots\dots\dots$

(a) $a + \frac{b}{c}$

(b) $\frac{a}{c} + b$

(c) $\frac{a}{c} + \frac{b}{c}$

(d) $\frac{ab}{c}$

13 If $X + 1 > 6$, then which of the following can be the value of X ?

(a) 3

(b) 4

(c) 6

(d) 5

14 What is the value of m that make the expression $(X^2 - 5X + m)$ can be divided by $(X - 2)$?

(a) 6

(b) 2

(c) 5

(d) 1

15 The quotient of $(2X^2 - 7X + 5) \div (2X - 5)$ is

(a) X

(b) $X - 1$

(c) $X + 1$

(d) $X + 5$

16 $\frac{15ab^2 - 20a^2b^2}{\dots\dots\dots} = 3b - 4ab$

(a) $7ab$

(b) $3b$

(c) $5ab$

(d) $7a^2b^2$

17 If $A > B$ and $C < 0$, then $A \times C \dots\dots\dots B \times C$

(a) $>$

(b) $<$

(c) $\geq$

(d) $\leq$

18 If $(X - 5)(X - 2) = X^2 + bX + c$, then the value of c is

(a) -10

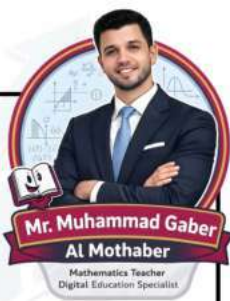
(b) -7

(c) 7

(d) 10

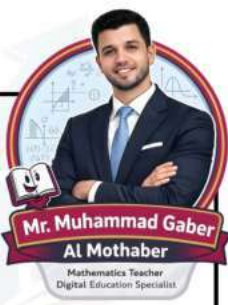


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- 19 If the image of the point $(7, 3a - 12)$ remains the same point when reflected in the X -axis, then the value of $a = \dots\dots\dots$
- (a) -4 (b) 3 (c) 12 (d) 4
- 20 The image of the point $(-3, 0)$ by rotation $R(O, 90^\circ)$ followed by rotation $R(O, -90^\circ)$ is $\dots\dots\dots$
- (a) $(3, 0)$ (b) $(0, 3)$ (c) $(0, -3)$ (d) $(-3, 0)$
- 21 If the area of a square is 450 square units, then the length of its diagonal = $\dots\dots\dots$ length units
- (a) 15 (b) 30 (c) 45 (d) 90
- 22 The image of the point $(-2, 5)$ by the translation $(2, -5)$ is $\dots\dots\dots$
- (a) $(0, -10)$ (b) $(-4, -10)$ (c) $(4, 10)$ (d) $(0, 0)$
- 23 If $(a, -1)$ is the image of $(2, 4)$ by the translation $(X, y) \rightarrow (X + 1, y - b)$, then $(a, b) = \dots\dots\dots$
- (a) $(3, 3)$ (b) $(1, 3)$ (c) $(3, 5)$ (d) $(1, -5)$
- 24 The translation that makes the point $A'(-2, 1)$ the image of the point $A(4, -5)$ is $\dots\dots\dots$
- (a) $(-6, 6)$ (b) $(-6, -4)$ (c) $(2, -4)$ (d) $(6, -6)$
- 25 A trapezium the lengths of its two parallel bases are 15 cm and 11 cm. then the length of its middle base is $\dots\dots\dots$ cm.
- (a) 26 (b) 15 (c) 13 (d) 11
- 26 The image of the point $(-7, 2)$ under rotation $R(O, 180^\circ)$ is $\dots\dots\dots$
- (a) $(-2, 7)$ (b) $(7, -2)$ (c) $(-7, -2)$ (d) $(-2, -7)$
- 27 The image of the point (X, y) by reflection in the X -axis is $\dots\dots\dots$
- (a) $(y, -X)$ (b) $(X, -y)$ (c) $(-X, y)$ (d) $(-X, -y)$

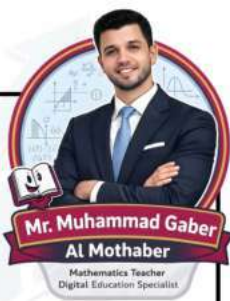




- 28 When drawing a card from 10 identical cards numbered from 1 to 10 , which of the following is the event of drawing a number divisible by 2 ?
- (a) { 2 , 6 } (b) { 2 , 4 , 6 , 8 , 10 } (c) { 2 , 4 , 6 , 8 } (d) { 2,4,6,8,10,12 }
- 29 In the experiment of tossing a fair coin 3 consecutive times , how many elements are in the sample space ?
- (a) 16 (b) 4 (c) 8 (d) 2
- 30 The probability of an impossible event =
- (a) 2 (b) 1 (c) zero (d) $\frac{1}{2}$
- 31 If a fair coin is tossed 400 times , the closest number of times that heads is expected to appear from the following is
- (a) 270 (b) 300 (c) 188 (d) 110
- 32 In an experiment of rolling a fair die once , what is the probability of appearing a number less than 5 ?
- (a) $\frac{1}{6}$ (b) $\frac{2}{3}$ (c) $\frac{1}{3}$ (d) $\frac{1}{2}$
- 33 In the experiment of choosing a digit of the number 4275 randomly , what is the sample space ?
- (a) { 2 , 4 , 5 } (b) { 2 , 4 , 5 , 7 } (c) { 4275 } (d) { 57 , 74 , 42 }
- 34 A card carrying a letter from the word “ ASMAA” is drawn randomly . What is the probability that the letter is (A) ?
- (a) $\frac{1}{5}$ (b) $\frac{4}{5}$ (c) $\frac{2}{3}$ (d) $\frac{3}{5}$
- 35 In an experiment of rolling a fair die once and observing the upper face , the probability of rolling a number that is not equal to 4 is
- (a) $\frac{1}{6}$ (b) $\frac{2}{3}$ (c) $\frac{1}{3}$ (d) $\frac{5}{6}$



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36 The multiplicative inverse of $3^x = \dots\dots\dots$

- (a) 1^x (b) 3^{x-1} (c) 3^{x+1} (d) $\left(\frac{1}{3}\right)^x$

37 If $a = 6^x$, $b = 6^{-x}$, then $a \times b = \dots\dots\dots$

- (a) 6^{2x} (b) 36^{2x} (c) 1 (d) 0

38 If $39 \times 10^{-8} = k \times 10^{-7}$, what is the value of k ?

- (a) 39 (b) 3.9 (c) 0.39 (d) 0.039

39 If $a = -\frac{1}{4}$ and $b = -\frac{9}{4}$, then $\sqrt{ab} = \dots\dots\dots$

- (a) $\frac{9}{8}$ (b) $\frac{3}{4}$ (c) $\frac{9}{16}$ (d) $-\frac{3}{4}$

40 What is the value of $\sqrt[3]{\sqrt{64}}$?

- (a) 4 (b) 2 (c) 8 (d) 64

41 If $-x < 5$, then which of the following is correct ?

- (a) $x > 5$ (b) $x > -5$ (c) $x < 5$ (d) $x < -5$

42 If $a + 3b = 7$, $c = 3$, then the value of the expression: $a + 3(b + c) = \dots\dots\dots$

- (a) 10 (b) 13 (c) 15 (d) 16

43 If $(X - 5)(X + 2) = X^2 + bX + c$, then the value of c is

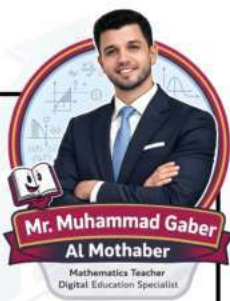
- (a) -10 (b) -7 (c) 7 (d) 10

44 $\div (-2X^2y) = 12Xy^2$

- (a) $6Xy$ (b) $-6Xy$ (c) $24X^3y^3$ (d) $-24X^3y^3$



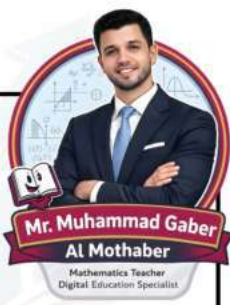
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- 45 If $\frac{3x + 15}{x - a} = 3$, what is the value of a ?
- (a) -3 (b) 3 (c) 5 (d) -5
- 46 A rhombus of perimeter 40cm and height 8 cm . What is its area?
- (a) 15 cm² (b) 60 cm² (c) 30 cm² (d) 80 cm²
- 47 A trapezium the lengths of its two parallel bases are 17 cm and 13 cm. then the length of its middle base is cm.
- (a) 26 (b) 15 (c) 13 (d) 11
- 48 A square of diagonal length 8 feet ,then its area = sq.feet
- (a) 32 (b) 72 (c) 64 (d) 16
- 49 If the image of the point (5 , 4 b - 16) remains the same point when reflected in the X -axis ,then the value of b =
- (a) - 4 (b) 3 (c) 12 (d) 4
- 50 The image of the point (5 , 0) by reflection in the y -axis is
- (a) (5 , 0) (b) (- 5 , 0) (c) (0 , 5) (d) (0 , - 5)
- 51 The image of the point (5 , -2) by a translation of 5 units in the negative direction of the X -axis
- (a) (5 , -7) (b) (10 , - 2) (c) (0 , - 2) (d) (5 , - 3)
- 52 Identity rotation is a rotation around the origin by an angle^o
- (a) 90^o (b) 180^o (c) 270^o (d) 360^o
- 53 The image of the point (7 , 2) under rotation $R(O, -180^\circ)$ is
- (a) (- 2 , 7) (b) (7 , - 2) (c) (- 7 , - 2) (d) (- 2 , - 7)



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Question 2

Answer the following

1 Find the value of each of the following :

a $\sqrt[3]{343 - 7^3}$

b $\frac{(-3)^6}{(-3)^3} + \frac{(-4)^5}{(-4)^3}$

c $\sqrt{\frac{4a^2}{9b^2}}$

2 Write each of the following in scientific notation :

a -72.1×10^{-3}

b 12 million

c 0.4×10^{-10}

3 Find the solution set of each of the following equations in Z : -

a $x^3 + 26 = -1$

b $6x^2 - 2 = 4x^2 + 6$

c $3x^3 - 7 = 2x^3 + 20$

4 A cube has a volume of 512 cubic cm . Find its total surface area and its lateral area .

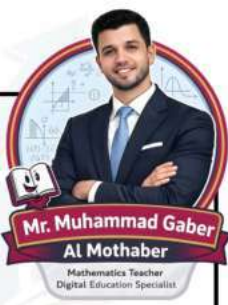
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5 Write the following in the simplest form :-

a $\left(\frac{3}{2}\right)^2 + \sqrt[3]{\frac{125}{64}} + \sqrt{\frac{25}{4}}$

.....

.....

b $\sqrt{\frac{49}{4}} \times \left(\frac{2}{7}\right)^0 \times \left(-\frac{2}{7}\right)^2$

.....

.....

c $\left(-\frac{2}{5}\right)^2 \times \left(-\frac{5}{2}\right)^3 \times \left(\frac{1}{5}\right)^0$

.....

.....

6 Write the result of each of the following :-

a $(3.21 \times 10^{13}) - (8.1 \times 10^{12})$

.....

.....

b $(2.5 \times 10^6) \times (6 \times 10^{12})$

.....

.....

7 If $B \in \overline{AC}$, $(AB)^2 = 144$ and $(BC)^2 = 625$, then find the length of $\overline{AC}$.

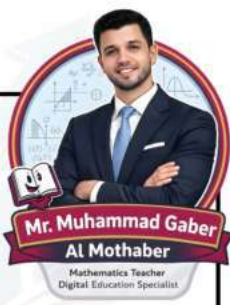
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- 8 Arwaa wanted to buy one pair of shoes and some bags. If Arwaa has 2000 L.E and the price of the shoes is 350 pounds and the price of a bag is 300 L.E , what is the greatest number of bags that Arwaa can buy?

.....

.....

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- 9 Simplify to the simplest form : $2X(3X - 1) + 3X(X + 2)$,then find the value when $X = 1$

.....

.....

- 10 Find the solution set of each of the following equations in X : -

a $8X - 3X + 1 \leq 29$

.....

.....

b $3(X + 2) \geq -2(X + 1)$

.....

.....

c $2 - 3(X - 5) \geq X + 7$

.....

.....

- 11 A cuboid with a volume of $(12x^2y + 20xy^2)$ cubic units and its base area of $4xy$ square units . Find its height in terms of x and y .

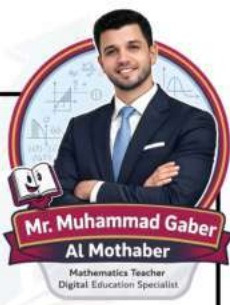
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12 Write the following in the simplest form : -

(a) $\frac{28x^2 - 42x}{7x} + \frac{14x^2 - 35x}{-7x}$

.....

.....

(b) $(4a - 3b)^2 - (4a - 3b)(4a + 3b)$

.....

.....

(c) $3a(4a - 1) + 2a(a + 3) - 5a(2a - 1)$

.....

.....

13 Write the result of each of the following : -

(a) $(2 + 2y^2 - 5y)$ divided by $(y - 2)$

.....

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(b) $\frac{3ab^2 + 9a^2b - 6a^2b^2}{3ab}$

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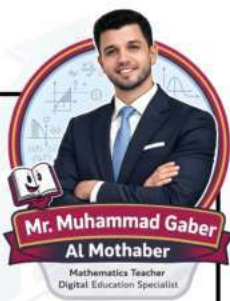
(c) $(lm + 6n)(lm - 6n)$

.....

14 Find the expression that represents the area of the following in the simplest form :

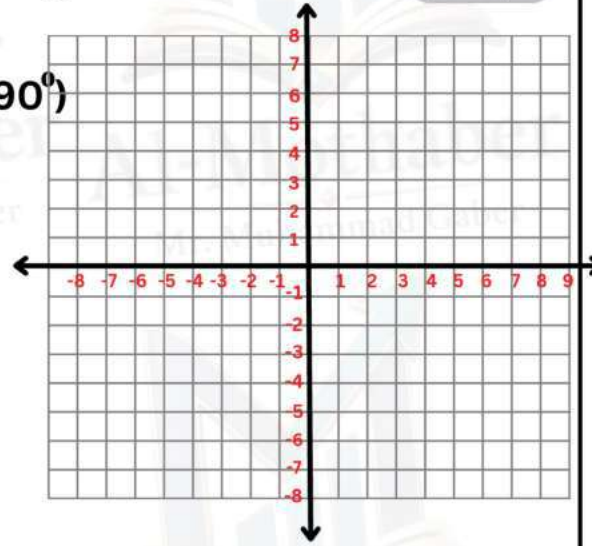


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- 15** Draw $\triangle ABC$ where $A(-6, 6)$, $B(-2, 2)$, $C(4, 1)$, then draw its image under each of the following transformations:

a Rotation $R(O, -90^\circ)$ **b** Rotation $R(O, 90^\circ)$



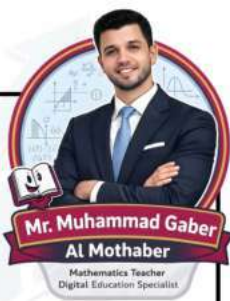
- 16** Which has a greater area? A square with a diagonal length of 12 cm or a rectangle with a length of 11 cm and a width of 7 cm.

- 17** Draw the triangle ABC where $AB = AC = 5$ cm, $m(\angle A) = 60^\circ$ and determine by measuring the type of the triangle according to its sides.

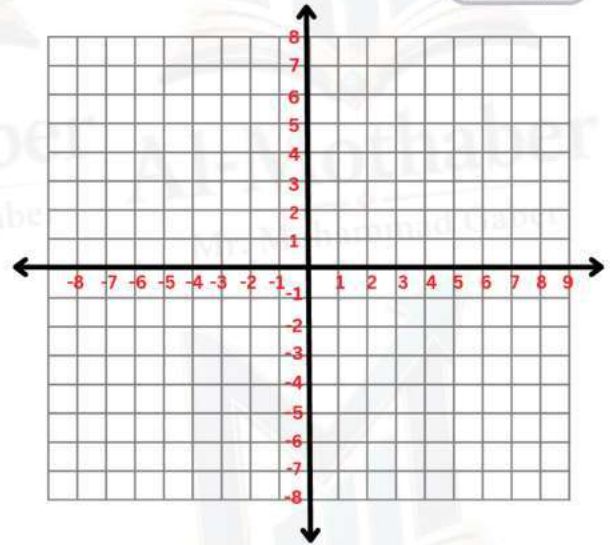
- 18** A rhombus with diagonal lengths $(2x + 4)$ cm and $(x + 5)$ cm. Find its area in terms of x , then find the numerical value of the area when $x = 3$



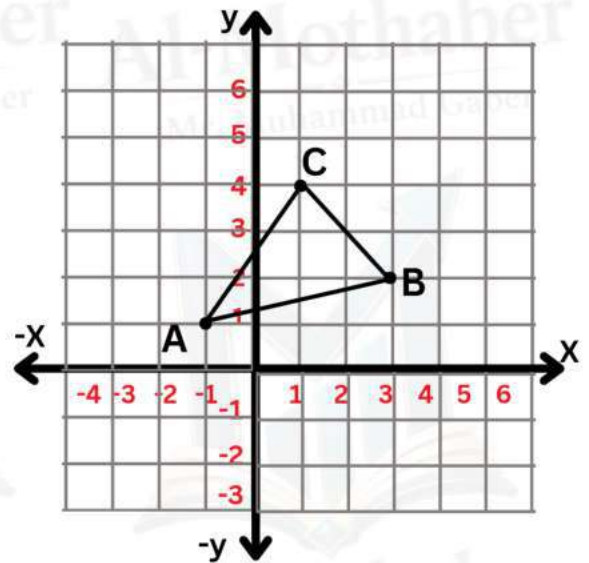
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- 19** Draw $\overline{AB}$ where $A(4, 3)$, and $B(1, -1)$, then draw its image by reflection in each: The X -axis and the y -axis



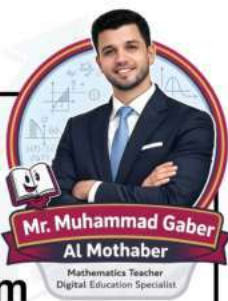
- 20** Identify the vertices of the triangle then find its image by the translation: $(x, y) \rightarrow (x + 2, y)$



- 21** Draw the triangle XYZ where $XY = XZ = 6$ cm, $ZY = 8$ cm. then bisect both $\angle Y$ and $\angle Z$ with bisectors intersecting at point M.



Follow me



22 If a card is drawn randomly from identical cards numbered from 20 to 29 , find the probability that the card carries a number :

a greater than 24

.....

c odd number

.....

b less than 20

.....

d prime number

.....

23 A bag contains one green ball, 3 red balls and 6 blue balls , all of which are identical . If a ball is chosen randomly from the bag and its color is observed , what is the probability that the chosen ball is :

a Blue ?

.....

c red ?

.....

b black ?

.....

d green ?

.....

24 A classroom contains 15 students, 4 of them have black hair , 5 have brown hair , and 6 have blond hair . If a student is chosen randomly , find the probability that the student :

a has blond hair

.....

b does not have brown hair

.....

25 A bag contains 25 cards numbered from 1 to 25 , one is drawn randomly and the number of the drawn card is observed , Answer the following .

a Event A is the event of getting a number greater than 20 .

.....

c Event D is the event of getting an even number .

.....

b Event B is the event of getting a perfect square number .

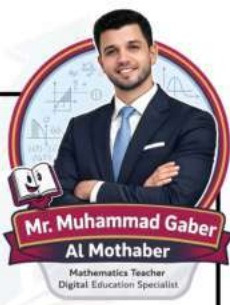
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d Event E is the event of getting a prime number .

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- 26** Find the value of b that makes the expression $(4x^2 + 11x + b)$ divisible by $(4x - 1)$

.....

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- 27** Simplify to the simplest form : $(2x - 5)(2x + 5) + 25$, then find the value when $x = 2$

.....

.....

- 28** Find the S.S for the each of the following in Z

$$3x + 7 < 7x + 3$$

.....

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- 29** Find the S.S for the each of the following in Q

$$x - 2 \leq 3x + 7$$

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- 30** If a and b are two positive integers and $a^b = 64$, find the smallest value of $(a + b)$.

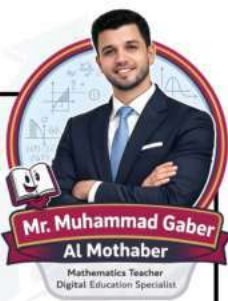
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- 31** A classroom contains 15 students, 4 of them have black hair , 5 have brown hair , and 6 have blond hair . If a student is chosen randomly , find the probability that the student :

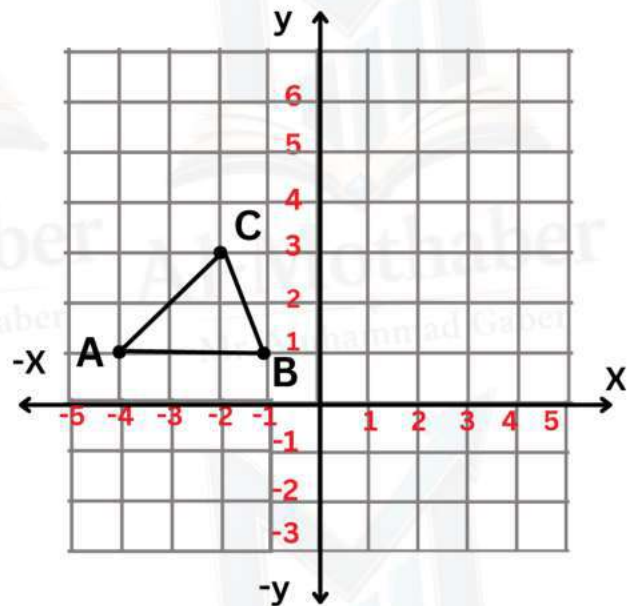
a has blond hair

.....

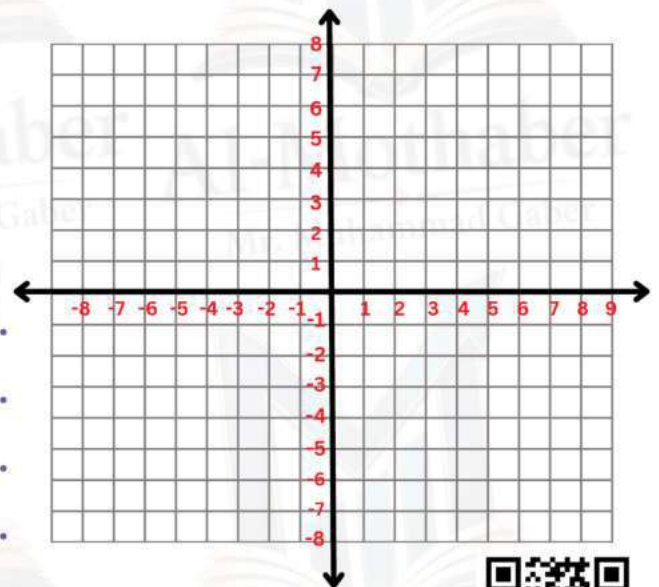
a does not have brown hair

.....

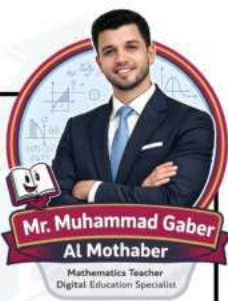
- 32** Draw the image of the triangle ABC under rotation $R(O, 90^\circ)$ followed by rotation $R(O, 180^\circ)$
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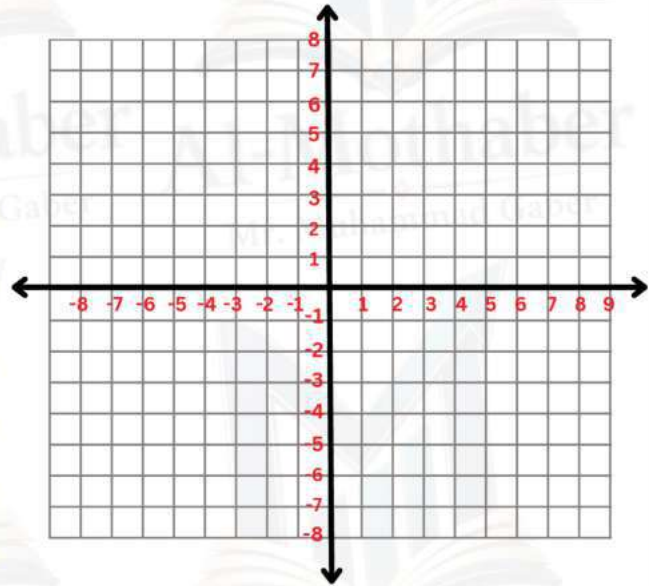
- 33** Draw the triangle ABC where $A(-2, -1)$ $B(3, 0)$, $C(2, 4)$, then draw its image by translation $(-2, 1)$ followed by translation $(0, -5)$.
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- 34** Draw $\triangle ABC$ where $A(1, 0)$, and $B(1, 4)$, and $C(3, 4)$, then draw its image by reflection in the X-axis followed by reflection in the y-axis.

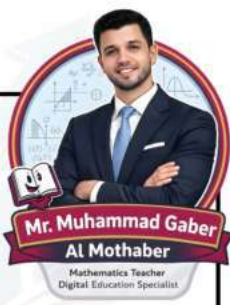


- 35** Draw $\triangle ABC$ where: $AB = 7$ cm, $BC = 9$ cm, $AC = 4$ cm, then determine by measuring the type of the triangle according to the measure of its angles.

- 36** Draw the equilateral triangle ABC , the length of each side 6 cm.



Follow me



- 37** Draw $\angle ABC$ of measure 100° , then divide it into 4 equal angles using a ruler and compass, showing the steps.

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- 38** Draw $\overline{XY}$ of length 7 cm, then bisect it using a ruler and compass at point C

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- 39** Which has a greater area?
A square with a diagonal length of 12 cm or a rectangle with a length of 11 cm and a width of 7 cm.

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- 40** A rhombus has a surface area of 20 square cm. If the length of one of its diagonals is 5 cm, find the length of the other diagonal.

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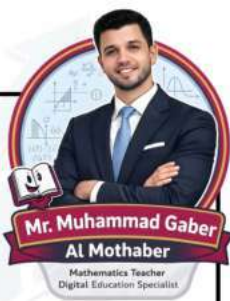
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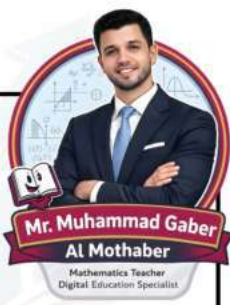
Question 1

Choose the correct answer

- 1 What is the image of the point (3 , 5) by translation $(x, y) \rightarrow x + 2, y - 3$?
 (a) (5 , 5) (b) (5 , 2) (c) (2 , 5) (d) (5 , -2)
- 2 The S.S. of the equation : $x^3 + 8 = 0$ in $\mathbb{Q}$ is -----
 (a) -2 (b) {-2} (c) {2} (d) ± 2
- 3 What is the image of the point (-2 , 1) by rotation $R (O , 180^\circ)$?
 (a) (-2 , 1) (b) (2 , -1) (c) (-1 , -2) (d) (-2 , -1)
- 4 A rhombus of diagonals lengths 7 cm. and 8 cm. has an area of ----- cm^2
 (a) 15 (b) 28 (c) 65 (d) 56
- 5 Which of the following equals 0.0000025 ?
 (a) 2.5×10^5 (b) 2.5×10^{-5} (c) 2.5×10^6 (d) 2.5×10^{-6}
- 6 $X(X + 2) =$ -----
 (a) $4x^2$ (b) $2x^2$ (c) $x^2 + 2x$ (d) $x^2 + x$
- 7 $(\frac{4}{3})^{-2} =$ -----
 (a) $\frac{9}{16}$ (b) $\frac{5}{6}$ (c) $\frac{-9}{16}$ (d) $\frac{3}{4}$
- 8 $\sqrt{\frac{25x^6}{4y^{10}}} =$ -----
 (a) $\frac{5x^6}{2y^{10}}$ (b) $\frac{5|x^3|}{2|y^5|}$ (c) $\frac{5x^6}{4y^5}$ (d) $\frac{5x^2}{2y^5}$
- 9 $(10x^4 + 2x^3) \div 2x =$ -----
 (a) $5x^3 + x$ (b) $5x + 1$ (c) $5x^2 + 2x$ (d) $5x^3 + x^2$



Follow me



Question 2

Answer the following

- 1 Find the solution set of the following inequality in $\mathbb{Q}$: $3x - 5 < 4$

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- 2 Find in its simplest form $\frac{x \times x^6 \times x^{-2}}{x^{-3} \times x^8}$

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- 3 Simplify to the simplest form $\sqrt{\frac{9}{4}} + \sqrt[3]{-\frac{27}{8}} + \left(\frac{4}{9}\right)^0$

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- 4 In an experiment of rolling a fair die once ,
what is the probability of obtaining :

a a number greater than 2 ?

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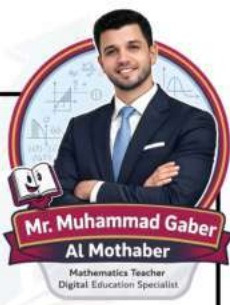
b a prime number less than 4 ?

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- 5 Draw an equilateral triangle ABC with a side length of 4 cm.

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- 6 A bag contains one red ball , 6 blue balls , and 3 green balls , all balls are identical. If a ball is drawn randomly from the bag and its color is observed , find the probability that the drawn ball is :

a blue

b red

c blue or green.

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- 7 Draw the triangle ABC where $A(2, 4)$, $B(1, 1)$, and $C(4, 1)$, then draw its image by reflection in the X-axis followed by reflection in the y-axis.

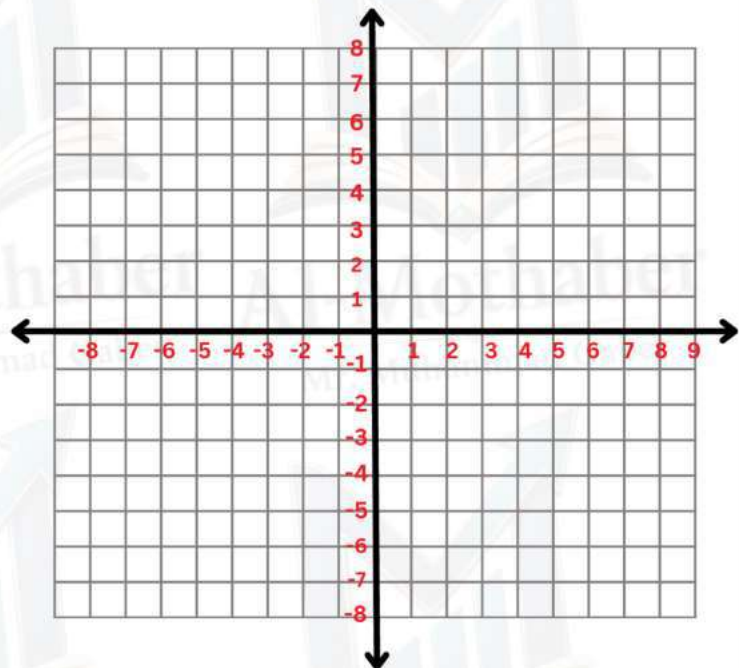
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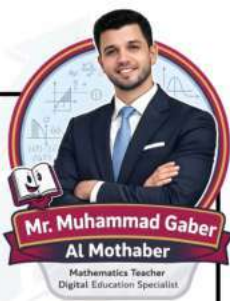
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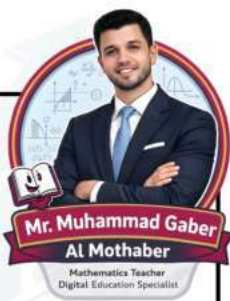
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Question 1 Choose the correct answer

- 1 If the lengths of the two diagonals of a rhombus are 15 cm and 10 cm , then its area = ----- cm².
 (a) 300 (b) 150 (c) 75 (d) 37.5
- 2 The image of the point (-4 , 2) by the rotation R (O , 90°) is the point ----
 (a) (-2 , -4) (b) (-4 , -2) (c) (-2 , 4) (d) (2 , 4)
- 3 Area of a square is 16 cm² , then its perimeter = ----- cm.
 (a) 4 (b) 8 (c) 16 (d) 64
- 4 $\frac{3x^2 - 6x}{3x} = \text{-----}$
 (a) $x^2 - 2x$ (b) $x - 2$ (c) $-x^2$ (d) $-x$
- 5 If $(3x - 7)^2 = mx^2 + kx + l$, then k = -----
 (a) 42 (b) 21 (c) -21 (d) -42
- 6 If $-x < 5$, then -----
 (a) $x < 5$ (b) $x < -5$ (c) $x > 5$ (d) $x > -5$
- 7 If $\sqrt[3]{x} = -8$, then $x = \text{-----}$
 (a) -512 (b) -2 (c) 2 (d) 64
- 8 If $0.000073 = 7.3 \times 10^n$, then n = -----
 (a) -6 (b) -5 (c) 5 (d) 6
- 9 Third of $3^x = \text{-----}$
 (a) $(\frac{1}{3})^x$ (b) 3^{x-1} (c) 3^{x+1} (d) 1^x



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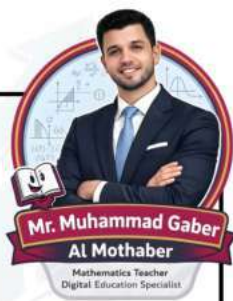
Question 2

Answer the following

- 1** If a fair die is rolled once and the number appearing on the upper face is observed, find the probability of each of the following events :
- (a)** A is the event of getting an odd number.
-
-
- (b)** B is the event of getting a number greater than 4
-
-
- (c)** C is the event of getting the number 7
-
-
- 2** A trapezium its area equals 175 cm^2 and the lengths of its two parallel bases are 14 cm and 21 cm. Find its height.
-
-
-
- 3** Find in $\mathbb{Q}$ the S.S. of the following inequality : $2(x + 5) - 3 < 12$
-
-
-
- 4** Simplify : $(2x + 5)(2x - 5) + 25$, then find the numerical value of the resulting expression when $x = -1$
-
-
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Follow me



5 Find the S.S. of the following equation : $2x^2 + 1 = 33$ in $\mathbb{Z}$

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6 A bag contains three green balls , six blue balls and one red ball , all of which are identical. If a ball is drawn randomly from the bag , find the probability of :

a The drawn ball is white.

.....

.....

b The drawn ball is red or green.

.....

.....

c The drawn ball is green.

.....

.....

7 Draw $\triangle ABC$ whose vertices are $A(3, 1)$, $B(3, 4)$ and $C(1, -2)$, then find its image by translation $(x, y) \rightarrow (x + 1, y - 2)$

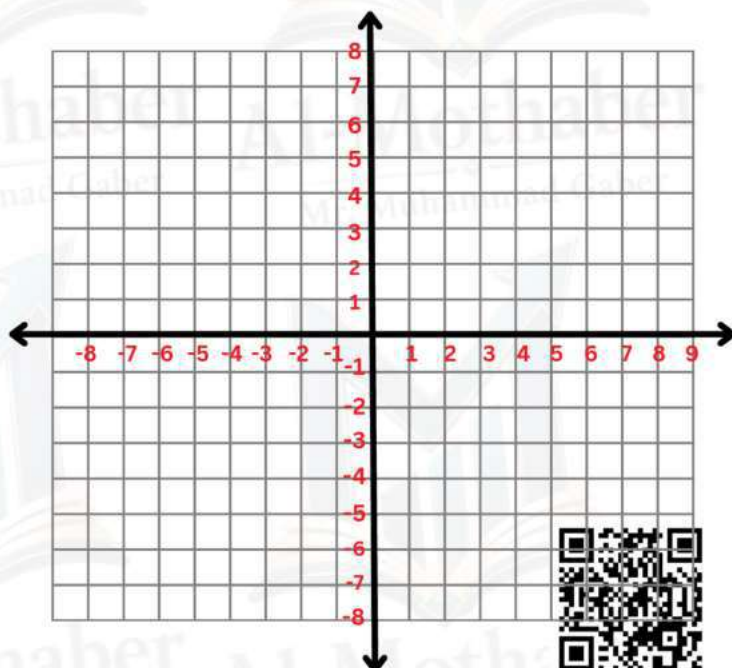
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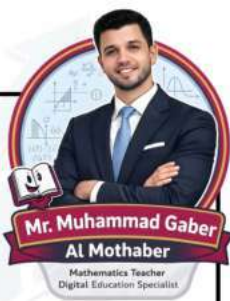
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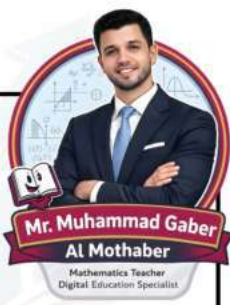
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Question 1 Choose the correct answer

- 1 If the area of a square is 18 square feet , then the length of its diagonal = ----- feet.
 (a) 6 (b) 36 (c) 9 (d) $\sqrt{18}$
- 2 A rhombus with a side length 8 cm , and a height of 6 cm , then its area = ----- cm^2
 (a) 14 (b) 24 (c) 36 (d) 48
- 3 If the length of the middle base of a trapezium is 12 cm and its height is 10 cm , then the area of the trapezium = ----- cm^2
 (a) 11 (b) 22 (c) 60 (d) 120
- 4 If $(2x - 1)^2 = ax^2 + bx + c$, then $b =$ -----
 (a) 4 (b) -4 (c) -2 (d) 2
- 5 $\frac{-12x^3y^3 + 4x^2y^3}{-4x^2y^3} =$ -----
 (a) $3x$ (b) $3x - 1$ (c) $3x + 1$ (d) $-3x - 1$
- 6 If $-3x^4 \times x^2 = ax^n$, then $a + n =$ -----
 (a) 5 (b) 3 (c) -5 (d) -3
- 7 The numerical value of the expression : $a^2 - b^2$, where $a = -2$, $b = -3$ is -----
 (a) 5 (b) 13 (c) -5 (d) -13
- 8 $\sqrt{\frac{25}{49}} + \left(\frac{3}{5}\right)^0 - \sqrt[3]{\frac{125}{343}} =$ -----
 (a) 1 (b) $1\frac{10}{7}$ (c) $\frac{10}{7}$ (d) $1\frac{3}{7}$



Follow me



9 If $45 \times 10^3 = k \times 10^4$, then $k =$ -----

(a) 450

(b) 4.5

(c) 0.45

(d) 0.045

Question 2

Answer the following

1 Find the solution set of the inequality : $2x - 3 > x - 1$ in $\mathbb{Z}$

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2 Simplify to the simplest form : $\frac{(-a)^3 \times a^5 \times a^2}{(-a) \times a^4 \times a^3}$

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3 Write the sample space of the following random experiment ,
indicating the number of its elements :

Experiment of tossing a fair coin twice and observing the
upper face.

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4 If $(x - 4)$ is a factor of the expression $(x^2 - 5x + 4)$,
then find the other factor.

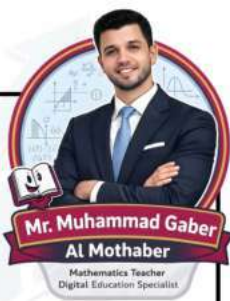
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- 5** A box contains 12 red balls , 3 blue balls and 5 black balls. All the balls are identical in shape and size. If one ball is selected at random , find the probability that the selected ball is :

a Black.

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b Not red.

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c Blue or red.

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- 6** Draw an angle of measure 60° , then bisect it using the ruler and the compass.

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- 7** Draw the triangle ABC where :
 $A(-3, 2)$, $B(0, 2)$, $C(2, 4)$,
 then draw its image under reflection in the X-axis.

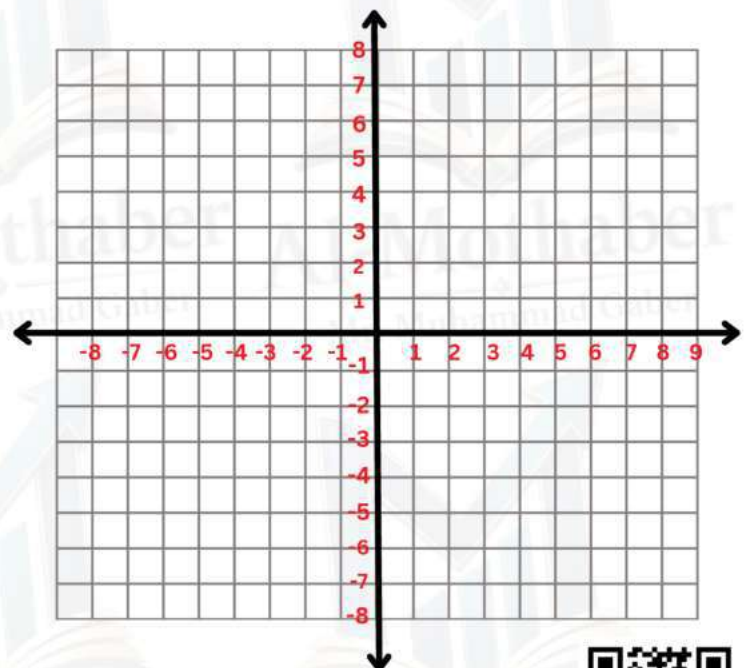
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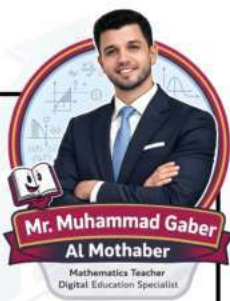
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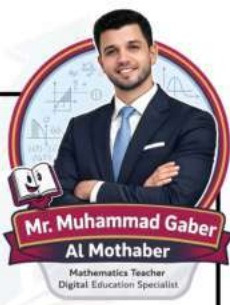
Question 1

Choose the correct answer

- 1 The image of the point $(-2, 0)$ by translation $(x, y) \rightarrow (x + 2, y + 1)$ followed by translation $(2, 1)$ is -----
 (a) $(0, 1)$ (b) $(2, 2)$ (c) $(0, 0)$ (d) $(6, 2)$
- 2 If $(x + 4)(x - 2) = x^2 + bx + c$, then the value of $b =$ -----
 (a) 6 (b) -6 (c) 2 (d) -2
- 3 A trapezium has an area of 70 cm^2 , the length of one of its parallel bases is 6 cm and its height 10 cm, then the length of its other base = ----- cm.
 (a) 8 (b) 7 (c) 13 (d) 14
- 4 Twice the number 2^6 is -----
 (a) 2^3 (b) 2^7 (c) 2^5 (d) 2^{12}
- 5 If $x - y = 3$, $x + y = 6$, then $x^2 - y^2 =$ -----
 (a) 2 (b) 3 (c) 9 (d) 18
- 6 $(x^2 + x) \div x =$ -----
 (a) 0 (b) x (c) $x + 1$ (d) $2x + 1$
- 7 A rhombus with diagonal lengths of 12 cm and 16 cm has an area of ----- cm^2
 (a) 192 (b) 96 (c) 48 (d) 28
- 8 If $0.0000039 = 3.9 \times 10^n$, then $n =$ -----
 (a) -5 (b) -6 (c) 5 (d) 6
- 9 If $\sqrt[3]{8} = \sqrt{x}$, then $x =$ -----
 (a) 2 (b) 4 (c) 16 (d) 64



Follow me



Question 2

Answer the following

- 1 Draw $\triangle ABC$ in which $A(2, 1)$, $B(4, 1)$, $C(4, 4)$, then find its image under rotation $R(O, 90^\circ)$

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- 2 Draw $\triangle ABC$ in which $AB = 6 \text{ cm}$, $BC = 5 \text{ cm}$, $AC = 5 \text{ cm}$.

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- 3 Find the solution set of inequality : $4(3x - 2) > 2(2x + 1)$, $x \in \mathbb{Q}$

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- 4 Simplify to its simplest form : Square Root : $\sqrt{\frac{25}{4}} \times \left(-\frac{2}{9}\right)^0 \times \left(-\frac{2}{5}\right)^2$

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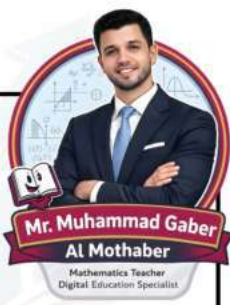
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5 A bag contains 3 red balls , 5 blue balls , 7 green balls. All balls are identical. Find the probability that the drawn ball is :

a blue ball

.....

.....

.....

b red ball

.....

.....

.....

c blue or green ball

.....

.....

.....

6 When a fair die is rolled once and the upper face is observed. Write sample space , then find the probability of the following events :

a getting an even number.

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.....

b getting a prime even number.

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7 Find in simplest form : $(3x + 2)(3x - 2) + (x + 2)^2$

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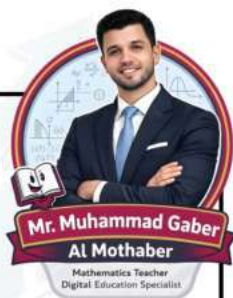
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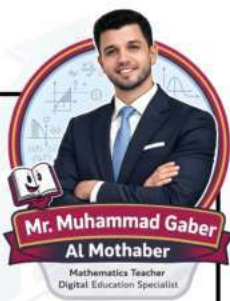
Question 1

Choose the correct answer

- | | | | | |
|------|------|------|------|------|
| 1 c | 2 a | 3 a | 4 d | 5 c |
| 6 a | 7 d | 8 c | 9 c | |
| 10 b | 11 c | 12 c | 13 c | 14 a |
| 15 b | 16 c | 17 b | 18 d | |
| 19 d | 20 d | 21 b | 22 d | 23 c |
| 24 a | 25 c | 26 b | 27 b | |
| 28 b | 29 c | 30 c | 31 c | 32 b |
| 33 b | 34 c | 35 d | | |
| 36 d | 37 c | 38 b | 39 b | 40 b |
| 41 b | 42 d | 43 a | 44 d | |
| 45 d | 46 d | 47 b | 48 a | 49 d |
| 50 b | 51 c | 52 d | 53 c | |



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Question 2

Answer the following

1 (a) 0

(b) -11

(c) $\frac{2a}{3b}$

2 (a) 7.21×10^{-4}

(b) 1.2×10^7

(c) 4×10^{-11}

3 (a) S.S = {-3}

(b) S.S = {2, -2}

(c) S.S = {3}

4 T.A = 384 cm square
L.A = 256 cm square

5 (a) 6

(b) $\frac{2}{7}$

(c) $-\frac{5}{2}$

6 (a) 2.4×10^{13}

(b) 1.5×10^{19}

7 AC = 37 units

8 5

9 $9x^2 + 4x$ 13

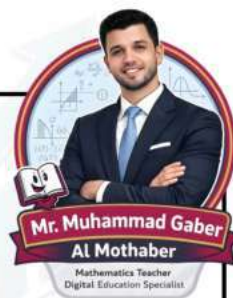
10 (a) In Q S.S = $\{x : x \in Q, x \leq 5\frac{3}{5}\}$

(b) In Q S.S = $\{x : x \in Q, x \geq -\frac{8}{5}\}$

(c) In Q S.S = $\{x : x \in Q, x \leq \frac{5}{2}\}$



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11 $3x + 5y$

12 (a) $2x - 1$

(b) $18b^2 - 24ab$

(c) $4a^2 + 8a$

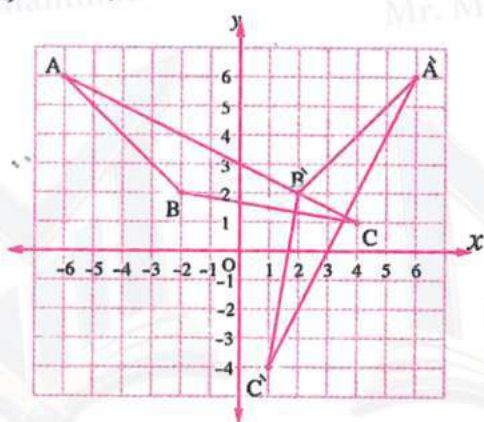
14 $3x^2 + xy$

15 By rotation $R(O, -90^\circ)$

$A(-6, 6) \rightarrow \hat{A}(6, 6)$

$B(-2, 2) \rightarrow \hat{B}(2, 2)$

$C(4, 1) \rightarrow \hat{C}(1, -4)$

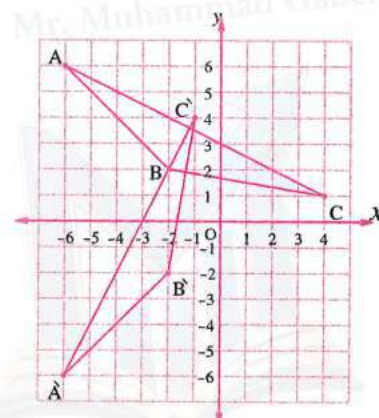


By rotation $R(O, 90^\circ)$

$A(-6, 6) \rightarrow \hat{A}(-6, -6)$

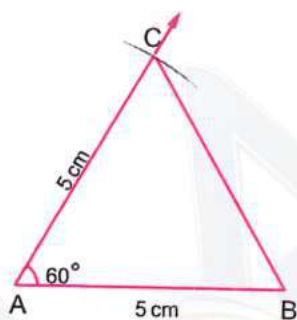
$B(-2, 2) \rightarrow \hat{B}(-2, -2)$

$C(4, 1) \rightarrow \hat{C}(-1, 4)$

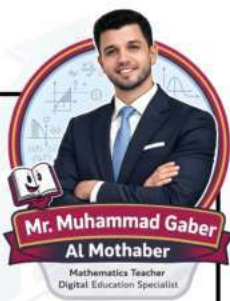


16 Area of rectangle $>$ Area of square

17 Equilateral



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- 18 Area is $x^2 + 7x + 10$

Area = 40 cm sq

- 19 By reflection in the X-axis

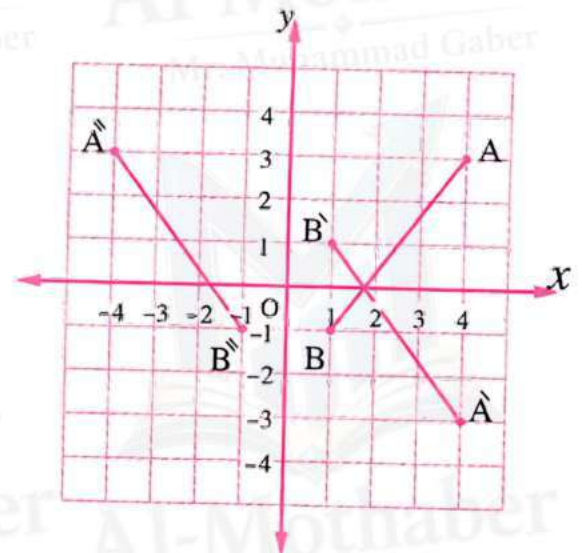
$$A(4, 3) \longrightarrow \hat{A}(4, -3)$$

$$B(1, -1) \longrightarrow \hat{B}(1, 1)$$

By reflection in the y-axis

$$A(4, 3) \longrightarrow \hat{\hat{A}}(-4, 3)$$

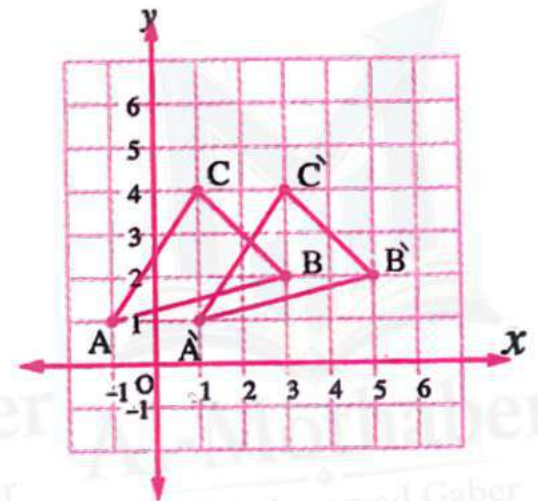
$$B(1, -1) \longrightarrow \hat{\hat{B}}(-1, -1)$$



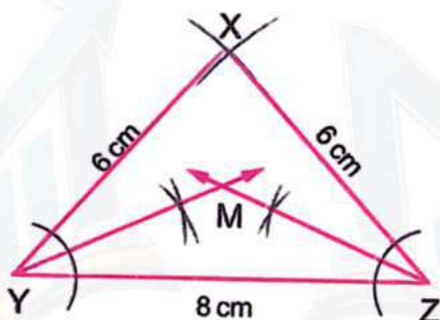
- 20
- $$A(-1, 1) \longrightarrow \hat{A}(1, 1)$$

$$B(3, 2) \longrightarrow \hat{B}(5, 2)$$

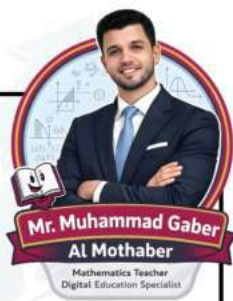
$$C(1, 4) \longrightarrow \hat{C}(3, 4)$$



- 21



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22

a

$\frac{1}{2}$

b

0

c

$\frac{1}{2}$

d

$\frac{1}{5}$

23

a

$\frac{3}{5}$

b

0

c

$\frac{3}{10}$

d

$\frac{1}{10}$

24

a

$\frac{2}{5}$

b

$\frac{2}{3}$

25

a

$S = \{1, 2, 3, 4, 5, 6\}$

b

$B = \{3, 6\}$

c

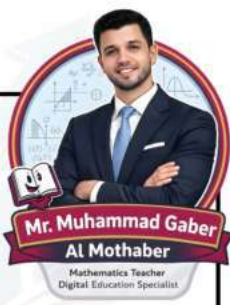
$D = \{1, 3, 5\}$

d

$E = \{2, 3, 5\}$



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- 26** Find the value of b that makes the expression $(4x^2 + 11x + b)$ divisible by $(4x - 1)$

$$b - 1 = 0$$

$$b = 1$$

$$\begin{array}{r} x + 1 \\ 4x + 1 \overline{) 4x^2 + 11x + b} \\ \underline{4x^2 + x} \\ 4x + b \\ \underline{-4x + 1} \\ 0 \end{array}$$

- 27** Simplify to the simplest form : $(2x - 5)(2x + 5) + 25$, then find the value when $x = 2$

$$S.S = \{0, -1, -2, \dots\}$$

$$\begin{aligned} 4x^2 - 25 + 25 &= 4x^2 \\ &= 4(2)^2 = 16 \end{aligned}$$

- 28** Find the S.S for the each of the following in Z

$$3x + 7 < 7x + 3$$

$$4x < 4 \quad x < 1 \quad S.S = \{0, -1, -2, \dots\}$$

- 29** Find the S.S for the each of the following in Q

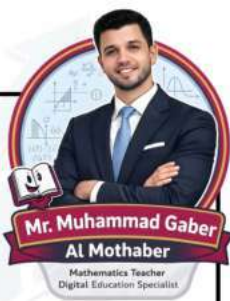
$$\begin{aligned} x - 2 &\leq 3x + 7 & -2 - 7 &\leq 3x - x & -9 &\leq 2x & x &\geq -\frac{9}{2} \\ S.S &= \{x : x, x \in Q, x \geq -\frac{9}{2}\} \end{aligned}$$

- 30** If a and b are two positive integers and $a^b = 64$, find the smallest value of $(a + b)$.

$$\begin{aligned} 64 &= 3^4 \\ a + b &= 3 + 4 = 7 \end{aligned}$$



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- 31** A classroom contains 15 students, 4 of them have black hair , 5 have brown hair , and 6 have blond hair . If a student is chosen randomly , find the probability that the student :

a has blond hair

$$\frac{6}{15} = \frac{2}{5}$$

a does not have brown hair

$$\frac{6+4}{15} = \frac{10}{15} = \frac{2}{3}$$

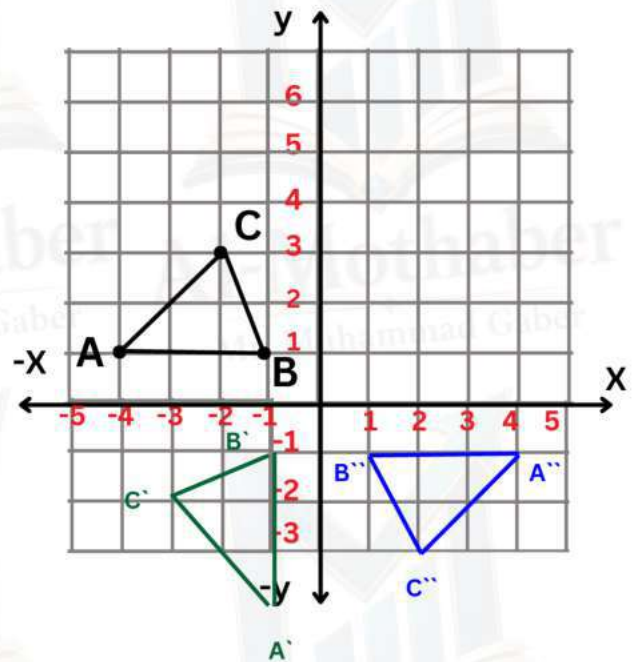
- 32** Draw the image of the triangle ABC under rotation $R(O, 90^\circ)$ followed by rotation $R(O, 180^\circ)$

$R(0^\circ, 90^\circ)$

$A(-4,1)$ $A'(-1,-4)$
 $B(-1,1)$ $B'(-1,-1)$
 $C(-2,3)$ $C'(-3,-2)$

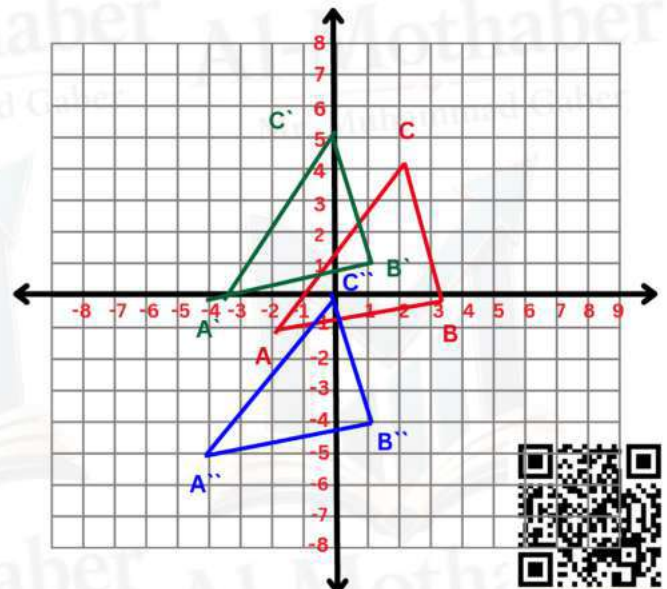
$R(0^\circ, 180^\circ)$

$A(-4,1)$ $A''(4,-1)$
 $B(-1,1)$ $B''(1,-1)$
 $C(-2,3)$ $C''(2,-3)$

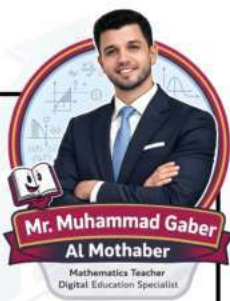


- 33** Draw the triangle ABC where $A(-2,-1)$, $B(3,0)$, $C(2,4)$, then draw its image by translation $(-2,1)$ followed by translation $(0,-5)$.

$A(-2,-1)$ $A'(-4,0)$ $A''(-4,-5)$
 $B(3,0)$ $B'(1,1)$ $B''(1,-4)$
 $C(2,4)$ $C'(0,5)$ $C''(0,0)$



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- 34** Draw $\triangle ABC$ where $A(1, 0)$, and $B(1, 4)$, and $C(3, 4)$, then draw its image by reflection in the X-axis followed by reflection in the y-axis.

$$A'(1, 0)$$

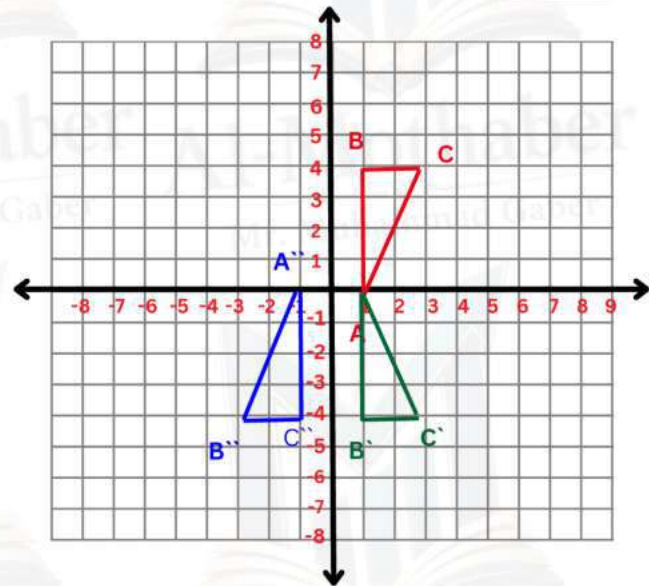
$$A''(-1, 0)$$

$$B'(1, -4)$$

$$B''(-1, -4)$$

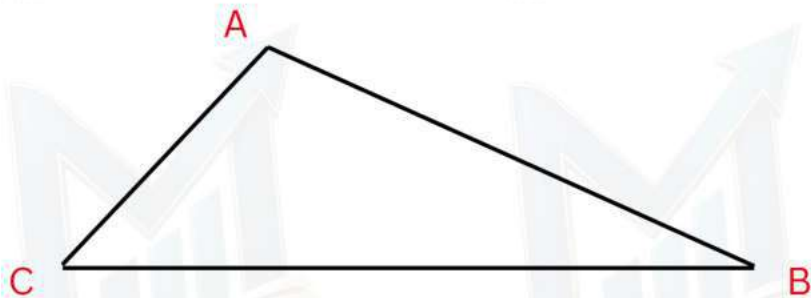
$$C'(3, -4)$$

$$C''(-3, -4)$$

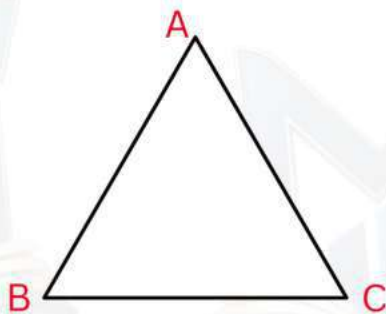


- 35** Draw $\triangle ABC$ where: $AB = 7$ cm, $BC = 9$ cm, $AC = 4$ cm, then determine by measuring the type of the triangle according to the measure of its angles.

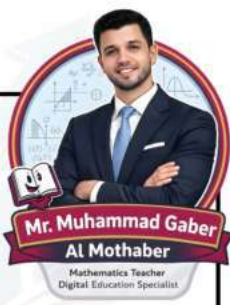
Obtuse angled triangle



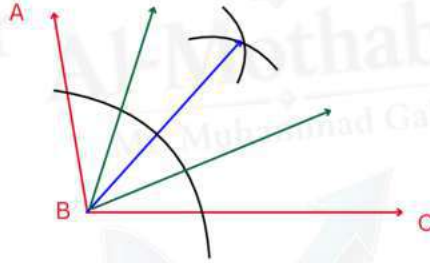
- 36** Draw the equilateral triangle ABC, the length of each side 6 cm.



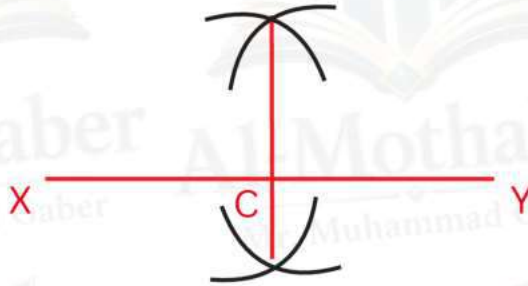
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- 37** Draw $\angle ABC$ of measure 100° , then divide it into 4 equal angles using a ruler and compass, showing the steps.



- 38** Draw $\overline{XY}$ of length 7 cm, then bisect it using a ruler and compass at point C



- 39** Which has a greater area?

A square with a diagonal length of 12 cm or a rectangle with a length of 11 cm and a width of 7 cm.

Square $A = \frac{1}{2} \times d^2 = \frac{1}{2} \times (12)^2 = 72\text{cm}^2$

Rectangle $A = l \times w = 11 \times 7 = 77\text{cm}^2$

The area of the rectangle is bigger.

- 40** A rhombus has a surface area of 20 square cm. If the length of one of its diagonals is 5 cm, find the length of the other diagonal.

$$A = \frac{1}{2} \times d_1 \times d_2$$

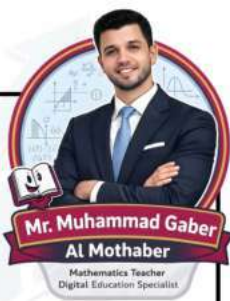
$$20 = 2.5 \times d_2$$

$$20 = \frac{1}{2} \times 5 \times d_2$$

$$d_2 = 8\text{cm}$$



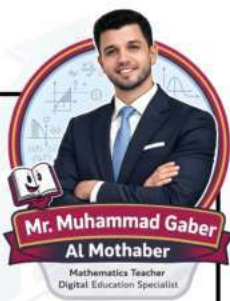
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Question 1 Choose the correct answer

- 1 What is the image of the point (3 , 5) by translation $(x, y) \rightarrow x + 2, y - 3$?
 (a) (5 , 5) (b) (5 , 2) (c) (2 , 5) (d) (5 , -2)
- 2 The S.S. of the equation : $x^3 + 8 = 0$ is -----
 (a) -2 (b) {-2} (c) {2} (d) ± 2
- 3 What is the image of the point (-2 , 1) by rotation R (O , 180°) ?
 (a) (-2 , 1) (b) (2 , -1) (c) (-1 , -2) (d) (-2 , -1)
- 4 A rhombus of diagonals lengths 7 cm. and 8 cm. has an area of ----- cm^2
 (a) 15 (b) 28 (c) 65 (d) 56
- 5 Which of the following equals 0.0000025 ?
 (a) 2.5×10^5 (b) 2.5×10^{-5} (c) 2.5×10^6 (d) 2.5×10^{-6}
- 6 $X(X + 2) =$ -----
 (a) $4x^2$ (b) $2x^2$ (c) $x^2 + 2x$ (d) $x^2 + x$
- 7 $\left(\frac{4}{3}\right)^{-2} =$ -----
 (a) $\frac{9}{16}$ (b) $\frac{5}{6}$ (c) $\frac{-9}{16}$ (d) $\frac{3}{4}$
- 8 $\sqrt{\frac{25x^6}{4y^{10}}} =$ -----
 (a) $\frac{5x^6}{2y^{10}}$ (b) $\frac{5|x^3|}{2|y^5|}$ (c) $\frac{5x^6}{4y^5}$ (d) $\frac{5x^2}{2y^5}$
- 9 $(10x^4 + 2x^3) \div 2x =$ -----
 (a) $5x^3 + x$ (b) $5x + 1$ (c) $5x^2 + 2x$ (d) $5x^3 + x^2$



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Question 2

Answer the following

- 1 Find the solution set of the following inequality in $\mathbb{Q}$: $3x - 5 < 4$

$$3x < 9$$

$$x < 3$$

$$S.S = \{x : x \in \mathbb{Q}, x < 3\}$$

- 2 Find in its simplest form $\frac{x \times x^6 \times x^{-2}}{x^{-3} \times x^8}$

$$= \frac{x^{1+6+(-2)}}{x^{(-3)+8}} = \frac{x^5}{x^5} = x^{5-5} = x^0 = 1$$

- 3 Simplify to the simplest form $\sqrt{\frac{9}{4}} + \sqrt[3]{-\frac{27}{8}} + \left(\frac{4}{9}\right)^0$
- $$= \frac{3}{2} + \left(-\frac{3}{2}\right) + 1 = 1$$

- 4 In an experiment of rolling a fair die once ,
what is the probability of obtaining :

- (a) a number greater than 2 ?

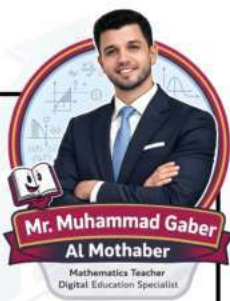
$$\frac{4}{6} = \frac{2}{3}$$

- (b) a prime number less than 4 ?

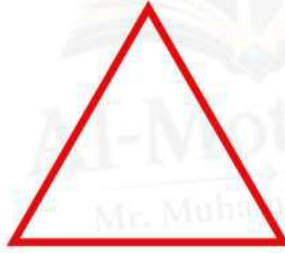
$$\frac{2}{6} = \frac{1}{3}$$



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- 5 Draw an equilateral triangle ABC with a side length of 4 cm.



- 6 A bag contains one red ball, 6 blue balls, and 3 green balls, all balls are identical. If a ball is drawn randomly from the bag and its color is observed, find the probability that the drawn ball is:

- (a) blue (b) red (c) blue or green.

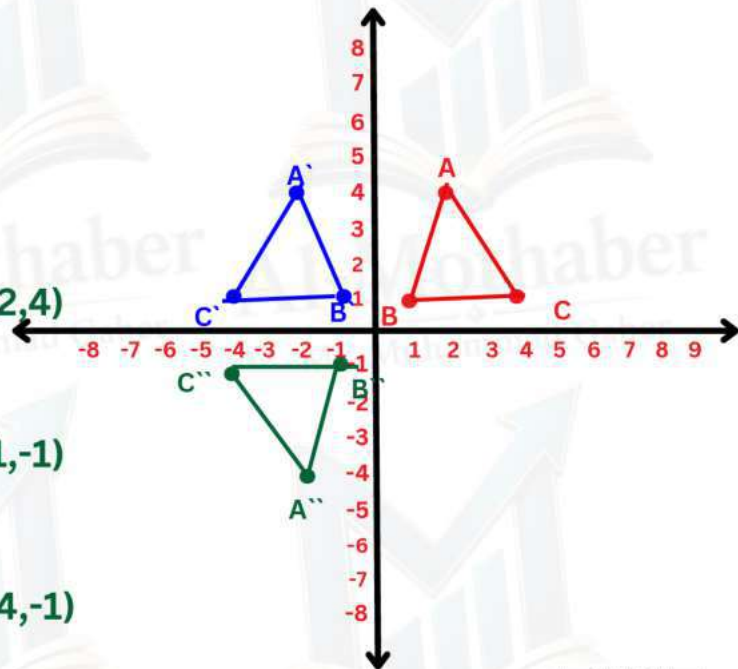
$$\frac{6}{10} = \frac{4}{5}$$

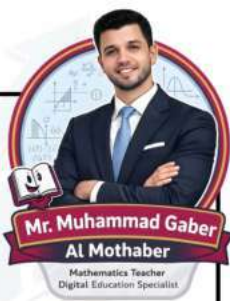
$$\frac{1}{10}$$

$$\frac{6+3}{10} = \frac{9}{10}$$

- 7 Draw the triangle ABC where $A(2, 4)$, $B(1, 1)$, and $C(4, 1)$, then draw its image by reflection in the X-axis followed by reflection in the y-axis.

$$\begin{aligned} A(2, 4) &\xrightarrow[\text{on } X \text{ axis}]{\text{reflection}} A'(2, -4) \xrightarrow[\text{on } y \text{ axis}]{\text{reflection}} A''(-2, 4) \\ B(1, 1) &\xrightarrow[\text{on } X \text{ axis}]{\text{reflection}} B'(1, -1) \xrightarrow[\text{on } y \text{ axis}]{\text{reflection}} B''(-1, -1) \\ C(4, 1) &\xrightarrow[\text{on } X \text{ axis}]{\text{reflection}} C'(4, -1) \xrightarrow[\text{on } y \text{ axis}]{\text{reflection}} C''(-4, -1) \end{aligned}$$

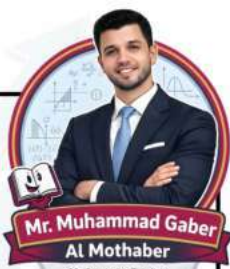



Question 1 Choose the correct answer

- 1 If the lengths of the two diagonals of a rhombus are 15 cm and 10 cm , then its area = ----- cm².
 (a) 300 (b) 150 (c) 75 (d) 37.5
- 2 The image of the point (-4 , 2) by the rotation R (O , 90°) is the point ----
 (a) (-2, -4) (b) (-4, -2) (c) (-2, 4) (d) (2, 4)
- 3 Area of a square is 16 cm² , then its perimeter = ----- cm.
 (a) 4 (b) 8 (c) 16 (d) 64
- 4 $\frac{3x^2 - 6x}{3x} = \text{-----}$
 (a) $x^2 - 2x$ (b) $x - 2$ (c) $-x^2$ (d) $-x$
- 5 If $(3x - 7)^2 = mx^2 + kx + l$, then k = -----
 (a) 42 (b) 21 (c) -21 (d) -42
- 6 If $-x < 5$, then -----
 (a) $x < 5$ (b) $x < -5$ (c) $x > 5$ (d) $x > -5$
- 7 If $\sqrt[3]{x} = -8$, then $x = \text{-----}$
 (a) -512 (b) -2 (c) 2 (d) 64
- 8 If $0.000073 = 7.3 \times 10^n$, then n = -----
 (a) -6 (b) -5 (c) 5 (d) 6
- 9 Third of $3^x = \text{-----}$
 (a) $(\frac{1}{3})^x$ (b) 3^{x-1} (c) 3^{x+1} (d) 1^x



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Question 2

Answer the following

- 1 If a fair die is rolled once and the number appearing on the upper face is observed, find the probability of each of the following events :

- (a) A is the event of getting an odd number.

$$\frac{3}{6} = \frac{1}{2}$$

- (b) B is the event of getting a number greater than 4

$$\frac{2}{6} = \frac{1}{3}$$

- (c) C is the event of getting the number 7

0

- 2 A trapezium its area equals 175 cm² and the lengths of its two parallel bases are 14 cm and 21 cm. Find its height.

$$A = \frac{1}{2}(b_1 + b_2) \times h$$

$$175 = \frac{1}{2}(14 + 21) \times h$$

$$175 = 17.5h$$

$$h = 10\text{cm}$$

- 3 Find in $\mathbb{Q}$ the S.S. of the following inequality : $2(x + 5) - 3 < 12$

$$2x + 10 - 3 < 12$$

$$2x + 7 < 12$$

$$2x < 5$$

$$x < \frac{5}{2}$$

$$S.S = \{x : x \in \mathbb{Q}, x < \frac{5}{2}\}$$

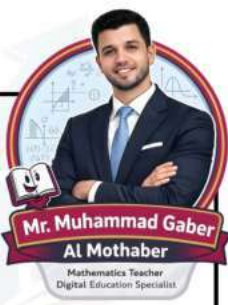
- 4 Simplify : $(2x + 5)(2x - 5) + 25$, then find the numerical value of the resulting expression when $x = -1$

$$4x^2 - 25 + 25 = 4x^2$$

$$= 4(-1)^2 = 4$$



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5 Find the S.S. of the following equation : $2x^2 + 1 = 33$ in $\mathbb{Z}$

$$2x^2 = 32$$

$$x^2 = 16$$

$$x = \pm 4$$

$$S.S = \{4, -4\}$$

6 A bag contains three green balls , six blue balls and one red ball , all of which are identical. If a ball is drawn randomly from the bag , find the probability of :

a) The drawn ball is white.

$$0$$

b) The drawn ball is red or green.

$$\frac{1}{10}$$

c) The drawn ball is green.

$$\frac{3}{10}$$

7 Draw $\triangle ABC$ whose vertices are $A(3, 1)$, $B(3, 4)$ and $C(1, -2)$, then find its image by translation $(x, y) \rightarrow (x + 1, y - 2)$

$$A(3,1)$$

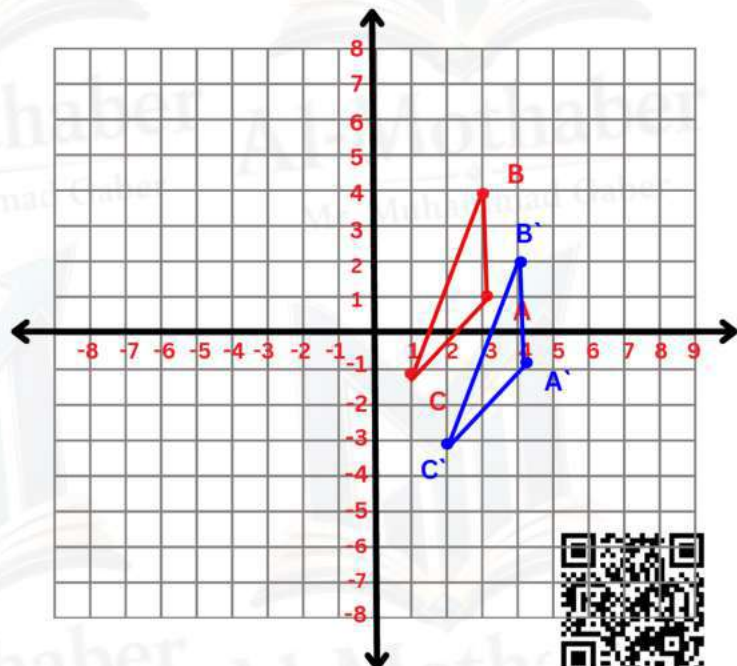
$$A'(4,-1)$$

$$B(3,4)$$

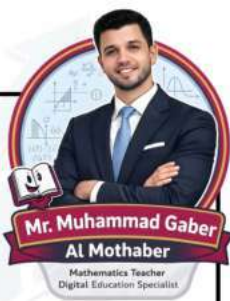
$$B'(4,2)$$

$$C(1,-2)$$

$$C'(2,-3)$$



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Question 1 Choose the correct answer

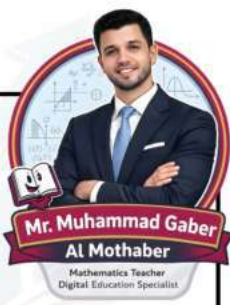
- 1 If the area of a square is 18 square feet , then the length of its diagonal = ----- feet.
 (a) 6 (b) 36 (c) 9 (d) $\sqrt{18}$
- 2 A rhombus with a side length 8 cm , and a height of 6 cm , then its area = ----- cm^2
 (a) 14 (b) 24 (c) 36 (d) 48
- 3 If the length of the middle base of a trapezium is 12 cm and its height is 10 cm , then the area of the trapezium = ----- cm^2
 (a) 11 (b) 22 (c) 60 (d) 120
- 4 If $(2x - 1)^2 = ax^2 + bx + c$, then $b =$ -----
 (a) 4 (b) -4 (c) -2 (d) 2
- 5
$$\frac{-12x^3y^3 + 4x^2y^3}{-4x^2y^3} = \text{-----}$$

 (a) $3x$ (b) $3x - 1$ (c) $3x + 1$ (d) $-3x - 1$
- 6 If $-3x^4 \times x^2 = ax^n$, then $a + n =$ -----
 (a) 5 (b) 3 (c) -5 (d) -3
- 7 The numerical value of the expression : $a^2 - b^2$, where $a = -2$, $b = -3$ is -----
 (a) 5 (b) 13 (c) -5 (d) -13
- 8
$$\sqrt{\frac{25}{49}} + \left(\frac{3}{5}\right)^0 - \sqrt[3]{\frac{125}{343}} = \text{-----}$$

 (a) 1 (b) $1\frac{10}{7}$ (c) $\frac{10}{7}$ (d) $1\frac{3}{7}$



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9 If $45 \times 10^3 = k \times 10^4$, then $k =$ -----

(a) 450

(b) 4.5

(c) 0.45

(d)

Question 2

Answer the following

1 Find the solution set of the inequality : $2x - 3 > x - 1$ in $\mathbb{Z}$

$$x - 3 > -1$$

$$x > 2$$

$$S.S = \{3, 4, 5, \dots\}$$

2 Simplify to the simplest form : $\frac{(-a)^3 \times a^5 \times a^2}{(-a) \times a^4 \times a^3}$

$$\frac{- (a^{3+5+2})}{- (a^{1+4+3})} = \frac{a^{10}}{a^8} = a^2$$

3 Write the sample space of the following random experiment , indicating the number of its elements :

Experiment of tossing a fair coin twice and observing the upper face.

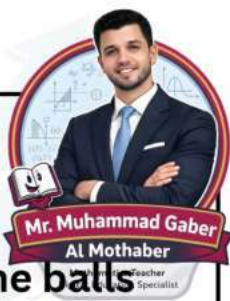
$$S = \{(H,H), (H,T), (T,H), (T,T)\}$$

4 If $(x - 4)$ is a factor of the expression $(x^2 - 5x + 4)$, then find the other factor.

$$x - 1$$



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- 5 A box contains 12 red balls , 3 blue balls and 5 black balls. All the balls are identical in shape and size. If one ball is selected at random , find the probability that the selected ball is :

a Black.

$$\frac{5}{20} = \frac{1}{4}$$

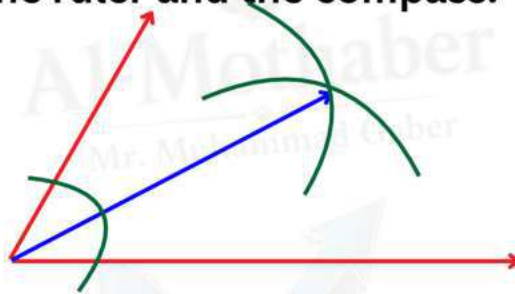
b Not red.

$$\frac{5+3}{20} = \frac{8}{20} = \frac{2}{5}$$

c Blue or red.

$$\frac{3+12}{20} = \frac{15}{20} = \frac{3}{4}$$

- 6 Draw an angle of measure 60° , then bisect it using the ruler and the compass.



- 7 Draw the triangle ABC where :
 $A(-3, 2)$, $B(0, 2)$, $C(2, 4)$,
 then draw its image under reflection in the X-axis.

$A(-3, 2)$

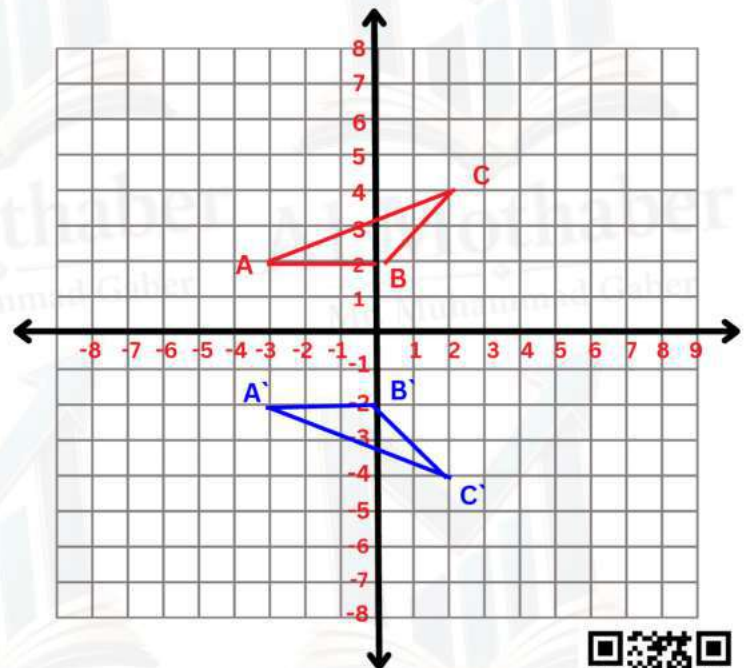
$A'(-3, -2)$

$B(0, 2)$

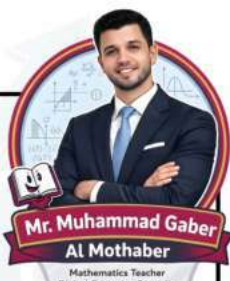
$B'(0, -2)$

$C(2, 4)$

$C'(2, -4)$



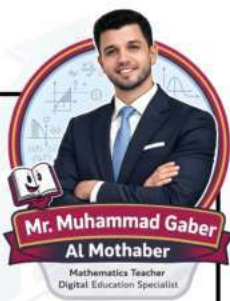
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Question 1 Choose the correct answer

- 1 The image of the point $(-2, 0)$ by translation $(x, y) \rightarrow (x + 2, y + 1)$ followed by translation $(2, 1)$ is -----
 (a) $(0, 1)$ (b) $(2, 2)$ (c) $(0, 0)$ (d) $(6, 2)$
- 2 If $(x + 4)(x - 2) = x^2 + bx + c$, then the value of $b =$ -----
 (a) 6 (b) -6 (c) 2 (d) -2
- 3 A trapezium has an area of 70 cm^2 , the length of one of its parallel bases is 6 cm and its height 10 cm, then the length of its other base = ----- cm.
 (a) 8 (b) 7 (c) 13 (d) 14
- 4 Twice the number 2^6 is -----
 (a) 2^3 (b) 2^7 (c) 2^5 (d) 2^{12}
- 5 If $x - y = 3$, $x + y = 6$, then $x^2 - y^2 =$ -----
 (a) 2 (b) 3 (c) 9 (d) 18
- 6 $(x^2 + x) \div x =$ -----
 (a) 0 (b) x (c) $x + 1$ (d) $2x + 1$
- 7 A rhombus with diagonal lengths of 12 cm and 16 cm has an area of ----- cm^2
 (a) 192 (b) 96 (c) 48 (d) 28
- 8 If $0.0000039 = 3.9 \times 10^n$, then $n =$ -----
 (a) -5 (b) -6 (c) 5 (d) 6
- 9 If $\sqrt[3]{8} = \sqrt{x}$, then $x =$ -----
 (a) 2 (b) 4 (c) 16 (d) 64



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Question 2

Answer the following

- 1 Draw $\triangle ABC$ in which $A(2, 1)$, $B(4, 1)$, $C(4, 4)$, then find its image under rotation $R(O, 90^\circ)$

$$A(2, 1)$$

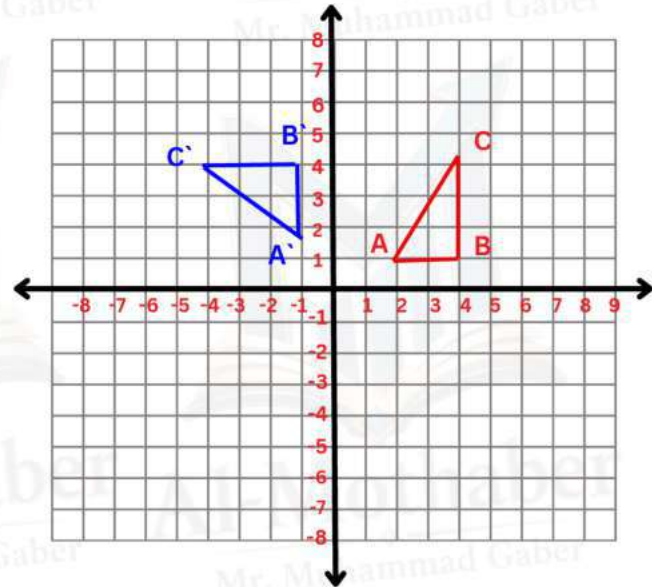
$$A'(-1, 2)$$

$$B(4, 1)$$

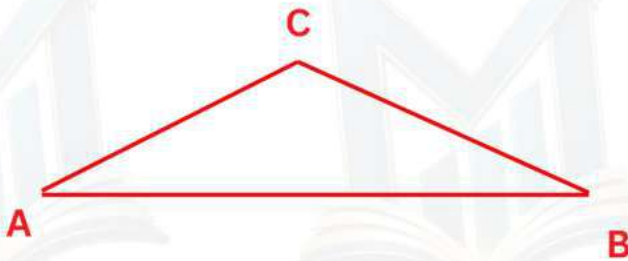
$$B'(-1, 4)$$

$$C(4, 4)$$

$$C'(-4, 4)$$



- 2 Draw $\triangle ABC$ in which $AB = 6$ cm, $BC = 5$ cm, $AC = 5$ cm.



- 3 Find the solution set of inequality : $4(3x - 2) > 2(2x + 1)$, $x \in \mathbb{Q}$

$$12x - 8 > 4x + 2$$

$$8x > 12$$

$$x > \frac{12}{8}$$

$$x > 1\frac{1}{2}$$

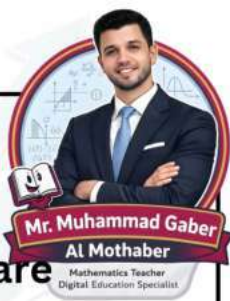
$$S.S = \{x : x \in \mathbb{Q}, x > 1\frac{1}{2}\}$$

- 4 Simplify to its simplest form : Square Root : $\sqrt{\frac{25}{4} \times (-\frac{2}{9})^0 \times (-\frac{2}{5})^2}$

$$\frac{5}{2} \times 1 \times \frac{4}{25} = \frac{2}{5}$$



Follow me



- 5 A bag contains 3 red balls , 5 blue balls , 7 green balls. All balls are identical. Find the probability that the drawn ball is :

(a) blue ball

$$\frac{5}{15} = \frac{1}{3}$$

(b) red ball

$$\frac{3}{15} = \frac{1}{5}$$

(c) blue or green ball

$$\frac{5+7}{15} = \frac{12}{15}$$

- 6 When a fair die is rolled once and the upper face is observed. Write sample space , then find the probability of the following events :

(a) getting an even number.

$$S = \{1, 2, 3, 4, 5, 6\}$$

$$\frac{1}{2}$$

(b) getting a prime even number.

$$\frac{1}{6}$$

- 7 Find in simplest form : $(3x + 2)(3x - 2) + (x + 2)^2$

$$9x^2 - 4 + x^2 + 4x + 4$$

$$10x^2 + 4x$$



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كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

